121

VISION IAS

www.visionias.in

VISION IAS
09 SEP 2019
NO. 03
RECEIVED

GENERAL STUDIES (TEST CODE : 1394)

Name of Candidate	Vedika Bansal		
Medium Eng./Hindi	English	Registration Number	523359
Center	ORN	Date	09.09.2019

INDEX TABLE

Q. No.	Maximum Marks	Marks Obtained
1	12.5	
2	12.5	
3	12.5	
4	12.5	
5	12.5	
6	12.5	
7	12.5	
8	12.5	
9	12.5	
10	12.5	
11	12.5	
12	12.5	
13	12.5	
14	12.5	
15	12.5	
16	12.5	
17	12.5	
18	12.5	
19	12.5	
20	12.5	

Total Marks Obtained:

Remarks:

INSTRUCTIONS

1. Do furnish the appropriate details in the answer sheet (viz. Name, Registration Number and Test Code).
   उत्तर पुस्तिका में सूचनाएं भरना आवश्यक है (नाम, प्रश्न–पत्र कोड, विद्यार्थी क्रमांक आदि)।
2. There are **TWENTY** questions printed in **ENGLISH & HINDI**
   इसमें बीस प्रश्न हैं अंग्रेजी और हिन्दी में छपे हैं।
3. **All questions are compulsory.**
   सभी प्रश्न अनिवार्य हैं।
4. The number of marks carried by a question/part is indicated against it.
   प्रत्येक प्रश्न/भाग के अंक उसके सामने दिए गए हैं।
5. Answers must be written in the medium authorized in the Admission Certificate, which must be stated clearly on the cover of this Question-Cum-Answer (QCA) Booklet in the space provided. No marks will be given for answers written in medium other that the authorized one.
   प्रश्नों के उत्तर उसी माध्यम में लिखे जाने चाहिए जिसका उल्लेख आपके प्रवेश पत्र में किया गया है और उस माध्यम का स्पष्ट उल्लेख प्रश्न–सह–उत्तर (क्यूसीए) पुस्तिका के मुख्य पृष्ठ पर अंकित निर्दिष्ट स्थान पर किया जाना चाहिए। उल्लिखित माध्यम के अतिरिक्त अन्य किसी माध्यम में लिए गए उत्तर पर कोई अंक नहीं मिलेंगे।
6. Word limit in questions, if specified, should be adhered to.
   प्रश्नों में शब्द सीमा, जहाँ विनिर्दिष्ट है, का अनुसरण किया जाना चाहिए।
7. Any page or portion of the page left blank in the Question-Cum-Answer Booklet must be clearly struck off.
   उत्तर पुस्तिका में खाली छोड़ा हुआ पृष्ठ या उसके अंश को स्पष्ट रूप से काटा जाना चाहिए।

16-B, 2nd Floor, Above National Trust Building, Bada Bazar Marg, Old Rajinder Nagar, Delhi-110060

Plot No. 857, 1st Floor, Banda Bahadur Marg (Opp Punjab & Sindh Bank), Dr. Mukherjee Nagar Delhi- 110009

EVALUATION INDICATORS

1. Contextual Competence
2. Content Competence
3. Language Competence
4. Introduction Competence
5. Structure - Presentation Competence
6. Conclusion Competence

Overall Macro Comments / feedback / suggestions on Answer Booklet:

1.

2.

3.

4.

5.

6.

All the Best

Don't write anything this margin (इस भाग में कुछ ना लिखें)

Answer all the questions in NOT MORE THAN 200 WORDS each. Content of the answers is more important than its length. All questions carry equal marks. 12.5X20=250

1. Explain the value-added, income and expenditure methods of estimating national income.

राष्ट्रीय आय के आकलन की मूल्य-वर्धित, आय और व्यय विधियों को स्पष्ट कीजिए।

National Income calculation helps to formulate policy, depict the growth and development of an economy. Various methods to calculate national income (NI) include value added, income and consumption.

Value Added Method -

It estimates income from the producers side. Value added is calculated by deducting the value of intermediate consumption from the final production. It removes the problem of double counting. Value added by all the firms adds up to the National income. Net indirect taxes are subtracted to arrive at factor cost.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

Income Method - It is estimated from the distribution side. It incorporates all the factor payments received in terms of rent(R)+profit(P) wages(W), interest(I)

GDP = R + W + P + I.

Problems in this method are due to the self-employed, computation of imputed rent, etc.

Expenditure Method - It is estimated from the expenditure side of various sectors i.e. -

(i) Consumption expenditure by individuals (C)

(ii) Government Expenditure (G)

(iii) Investment by firms or Government (I)

(iv) Net exports - Imports - Exports (X - M)

∴ GDP = C + I + G + (X - M)

Don't write anything this margin
(इस भाग में कुछ ना लिखें)

Thus, national income is calculated in these three ways.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

2. Explain why Micro, Small and Medium Enterprises (MSME) sector is regarded as the 'growth engine' of the Indian economy. Suggest key reforms that are required for improving the overall business climate for MSMEs in India.

स्पष्ट कीजिए कि क्यों सूक्ष्म, लघु और मध्यम उद्यम (MSME) क्षेत्रक को भारतीय अर्थव्यवस्था का 'ग्रोथ इंजन' (वृद्धि इंजन) माना जाता है। भारत में MSMEs के लिए समग्र व्यावसायिक परिवेश में सुधार लाने हेतु आवश्यक महत्वपूर्ण सुधारों का सुझाव दीजिए।

'MSME sector is a catalyst for socio-economic transformation of India. It helps to fulfill the objectives of employment generation, reduction of poverty and industrial development.

Growth engine of economy:

(i) Contribution to GDP: MSME sector contributes more than 8% to the country's national income

(ii) Employment - The sector provides employment to more than 120 million people in India.

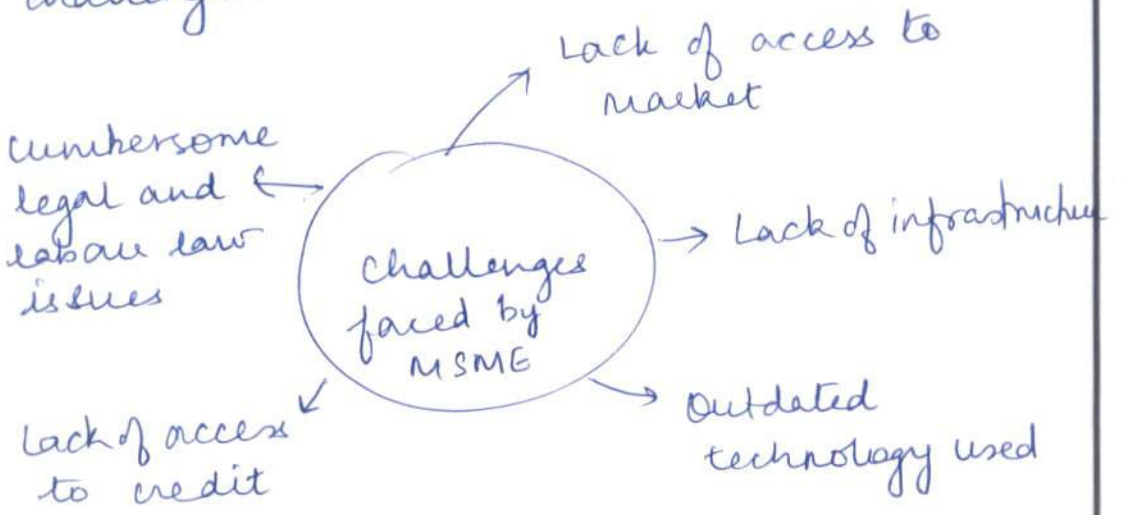
(iii) Industrial output - It contributes 40% to the manufacturing output.

(iv) Exports - MSME accounts for more than 47% of exports in foreign trade.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

(v) Development of backward regions - MSME stimulates development in regionally backward areas.

The MSME, though contributes enormously to the growth of economy faces certain challenges.



Thus, to solve the above challenges, the key reforms required are:

(i) Providing access to credit facilities - Financial institutions like MUDRA Bank should be further empowered to issue credit without the issue of collateral security.

(ii) Improving skills and imparting training

Don't write anything this margin (इस भाग में कुछ ना लिखें)

in the midst of rising competition

(iii) Promoting research and development in the areas to help in solving infrastructural bottlenecks

(iv) Establishing a separate e-commerce platform for widening reach of products like handicrafts (Phulkari), bamboo of Assam. This will reduce dependence on private e-commerce players.

(v) Transparency ~~and~~ in the procurement of finished products by the Government through GeM portal will help solve the issue of lack of market.

The India MSME Report, 2018 further highlights that an entitlement approach that has the potential to compel all stakeholders to work on a common national agenda and solutions under scientifically structured framework.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

3. The average size of holdings has shown a steady declining trend over the last three decades. What are the challenges faced by farmers due to fragmentation of land? What needs to be done in this regard?
विगत तीन दशकों के दौरान जोतों के औसत आकार में निरंतर गिरावट की प्रवृत्ति देखी गई है। भूमि के विखंडन के कारण किसानों को किन चुनौतियों का सामना करना पड़ रहा है? इस संबंध में क्या किये जाने की आवश्यकता है?

The Agriculture Census of 2015-16 depicts the rise in operational holdings by 5% and the size of average landholding decrease from 1.15 hectares to 1.08 hectares specifying the issue of fragmentation of land.

Reasons for the fragmentation:

(i) Increase in population
(ii) Psychological attachment to land
(iii) Law of inheritence
(iv) The division of land by big industries to sharecroppers.

The fragmentation leads to various challenges:

(i) Makes modernisation difficult - It gets difficult to increase productivity of land through use of tractors, sprinklers etc. when the land is very small.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

(ii) Increased litigation due to border disputes - The boundary disputes rise due to this and hence increases the pressure on farmers.

(iii) Wastage of land - In Punjab, more than 6% of land is wasted due to drawing up of boundaries itself. Thus, a lot of land gets wasted, where production could happen.

(iv) Decreased productivity of land - leading to problem of loss in the incomes and further dependence on moneylenders.

(v) Disguised unemployment

Thus, fragmentation doesn't bring in any benefits to farmers and only leads to challenges and issues.

Measures that can be taken :

(i) Economic holdings -

- A ceiling or a limit could be

Don't write anything this margin (इस भाग में कुछ ना लिखें)

introduced for holding of land which would be economically beneficial

- Establishing agro-processing industries in order to reduce the pressure on land.

(ii) Consolidating land - It should be done in a scientific manner wherein the land is divided in a compact manner first and then divided.

(iii) Creating employment opportunities through schemes like MGNREGA to shift the surplus labour not needed to industries.

(iv) Educating the farmers to enhance their productivity.

Various lessons can also be learnt through countries like Israel to use modern technology to enhance productivity

Don't write anything this margin (इस भाग में कुछ ना लिखें)

4. Distinguishing between a flexible and fixed exchange rate system, explain how exchange rate is determined under a flexible exchange rate system.

लचीली और स्थिर विनिमय दर प्रणाली के मध्य अंतर स्पष्ट करते हुए, समझाइए कि लचीली विनिमय दर प्रणाली के अंतर्गत विनिमय दर कैसे निर्धारित होती है।

An exchange rate is the rate at which two currencies can be exchanged for each other. The two prominent exchange rate regimes are fixed and flexible and other being managed exchange rate.

Fixed and Flexible rate:

Fixed	Flexible
(1) It is the rate which is determined by Government	(1) It is variated by the forces of demand and supply.
(2) Fixed by central Bank or the Government	It is variable and depends on the market.
(3) Changes in price - Devaluation & Revaluation	Changes in price - Depreciation & Appreciation
(4) Speculation takes place when there is a rumor about change in policy	Speculation is very common
(5) Operates through variation of supply of money, interest rate.	Operates to remove external instability by change in rate.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

Exchange rate determined under flexible rate system -

Under, this system the rate is determined through the demand and supply of the currencies.

Illustration - Taking Indian rupee and US dollar -

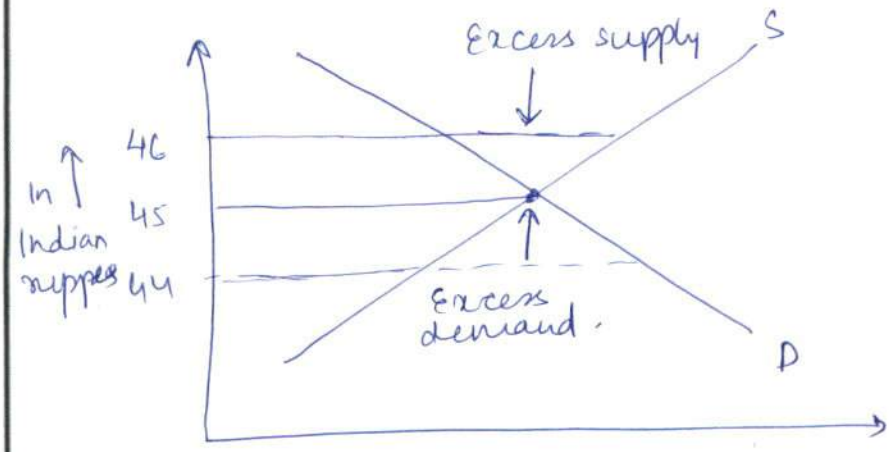
- The demand for dollar in India will come from → individuals, Government, to invest in share market, buy assets, etc.

When the dollar depreciates, fewer Indian rupees would be required to buy a dollar. Thus, the demand of dollars would increase. And, when the dollar appreciates, there would be a fall in the demand. Thus, the demand curve would be a downward sloping curve.

- The supply for dollar will come from the individuals who import goods into USA, Government, etc.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

The curve would be an upward sloping curve.



The excess supply would push the prices down and excess demand will push the prices up to the equilibrium exchange rate.

The fixed exchange rate though is certain does not respond to changes in the market. The flexible rate is uncertain and is usually managed by the central bank in times of emergencies.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

5. Discuss why enacting appropriate land leasing laws should be given priority in India.
चर्चा कीजिए कि भारत में उपयुक्त भूमि पट्टा कानूनों के अधिनियमन को प्राथमिकता क्यों दी जानी चाहिए।

A NITI Aayog report recently cited that land leasing is an "economic necessity" rather than feudal agrarian system.

According to Agriculture Census 2015-16, the small and marginal farmers account for more than 86%, however their share in operational landholding is a mere 47%.

Reasons for enacting land leasing laws:

(i) Predominance of small and marginal farmers which are more than 86% of total farmers.

(ii) A proper land leasing law will help incentivise tenants to invest in agricultural productivity.

(iii) Enhance the income of farmers through increase in productivity.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

(iv) It will help to bring in more land under cultivation which are currently fallows.

(v) The failure of land reforms in terms of tenancy laws ~~has~~ and the limitation of Model Leasing Act to not limit a ceiling.

(vi) Increase access to credit as more land will be brought under the framework. Collaterals as land can be provided.

(vii) Land leasing will lead to less exploitation of tenants.

Thus, land leasing law is an extreme priority currently. The committee on doubling farmers income has also suggested for the same.

Don't write anything this margin
(इस भाग में कुछ ना लिखें)

Don't write anything this margin
(इस भाग में कुछ ना लिखें)

6. Gross Domestic Product (GDP) of a country can not be taken as an index of the welfare of the people of that country. Analyse.

किसी देश के सकल घरेलू उत्पाद (GDP) को उस देश के लोगों के कल्याण का सूचक नहीं माना जा सकता है। विश्लेषण कीजिए।

GDP is the value of all final goods and services produced in a country in a year. It helps in the calculation of national income. However, it cannot be taken as a qualitative measure.

GDP cannot be taken as an index of welfare due to the following limitations of GDP:

(i) Non-monetised income - GDP does not take into account the services provided by housewives in the houses, the illegal and black money through gambling, etc.

(ii) Externalities - It also does not incorporate the benefits or harms provided through the production of certain goods and services.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

Example - An establishment of thermal power plant ~~in Bokaro~~ may lead to increase in production of coal and power, but also increases the level of pollution which is borne by the people. The pollution increases the cost of living due to frequent illness and reduces standard of living.

(iii) Distribution of income - Though, a country's GDP may be rising, but it is not conclusive that inequalities are rising or not. GDP does not accounts how the income is distributed in the strata of society. Thus, it cannot be used as welfare measure.

(iv) Prices - GDP also rises due to increase in price and not only increase in production.

(v)

Don't write anything this margin
(इस भाग में कुछ ना लिखें)

Thus, GDP is not the correct way to measure the welfare. Indexes like Human development Index, Gross National Happiness Index are better ways to measure the welfare of people.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

7. Bringing out the difference between depreciation and devaluation of a currency, explain how they affect foreign trade of a country.

मुद्रा के मूल्यह्रास और अवमूल्यन के मध्य अंतर प्रकट करते हुए, स्पष्ट कीजिए कि ये किसी देश के विदेशी व्यापार को कैसे प्रभावित करते हैं।

Depreciation and devaluation is the lowering the value of ~~currency~~ country's currency as compared to another country's value.

Difference between depreciation and devaluation

Basis	Devaluation	Depreciation
Circumstances	Done by Government	Done by the force of demand and supply in the international market.
Rate.	It is done by using fixed exchange rate.	Done by using flexible exchange rate.
Effect on economy	Short-term	Long-term
Changes	No fixed time and doesn't occur regularly	occurs on a daily basis

Don't write anything this margin (इस भाग में कुछ ना लिखें)

Affect on foreign trade :

(i) Exports increase - Depreciation of currency leads to increase in exports and the rise in competitiveness of the exports in the foreign market.

(ii) Reduction in Current Account Deficit - A rise in exports will increase the foreign exchange earnings and may lead to reduction in the deficit.

(iii) Imports become relatively expensive - The ~~rise in~~ imports decrease due to devaluation or depreciation of currency.

(iv) Higher inflation in the economy - The inflation rises in the country where currency depreciates, and as a result there is rise in aggregate demand and lack of adequate supply.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

Thus, depreciation and devaluation are though beneficial for the country but only for a period of time. A country should not manipulate its currency in order to garner growth as there are various repercussions to a prolonged period of fall in value of currency.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

8. Explain the mechanism of credit creation by the banking system in an economy. What are the factors that limit such credit creation?
अर्थव्यवस्था में बैंकिंग प्रणाली द्वारा साख सृजन की क्रियाविधि को स्पष्ट कीजिए। ऐसे कौन-से कारक हैं जो इस तरह के साख सृजन को सीमित करते हैं?

Commercial banks are the ones who stimulate credit creation in the economy through which economies function and grow as there is scarcity of resources.

Mechanism of credit creation:

Commercial banks (CBs) receive deposits from public which in turn is used to advance loans. ~~and~~ A certain amount of deposits is required to be held by the central Bank i.e. the Cash Reserve Ratio.

Example: (i) The primary deposit is 1000
(ii) Reserve Ratio is 10% at every bank.

Bank	Deposit	Reserve	Loan
Bank A	1000	100	900
Bank B	900	90	810
Bank C	810	81	729
			10,000

Don't write anything this margin (इस भाग में कुछ ना लिखें)

Thus, the money multiplies. In other words, credit created = Primary deposit × $\frac{1}{RR}$ i.e. $1000 \times \frac{1}{10\%}$ = 10,000.

~~Thus~~, Therefore, banking system stimulates credit in the economy. However, there are factors that limit its creation –

(i) Availability of cash – Higher the cash available, higher credit is created. Thus, cash is an important factor.

(ii) Banking habits of people – this is an important consideration. If people do not use banking facilities, credit will not be created.

(iii) Cash Reserve Ratio – Higher the CRR, lower amount is available to be given out as loans and advances and vice-versa.

(iv) Availability of borrowers – to whom credit is given.

Don't write anything this margin
(इस भाग में कुछ ना लिखें)

(v) Availability of securities which banks require as collateral. Thus, if the securities are not available, the credit creation will be hampered.

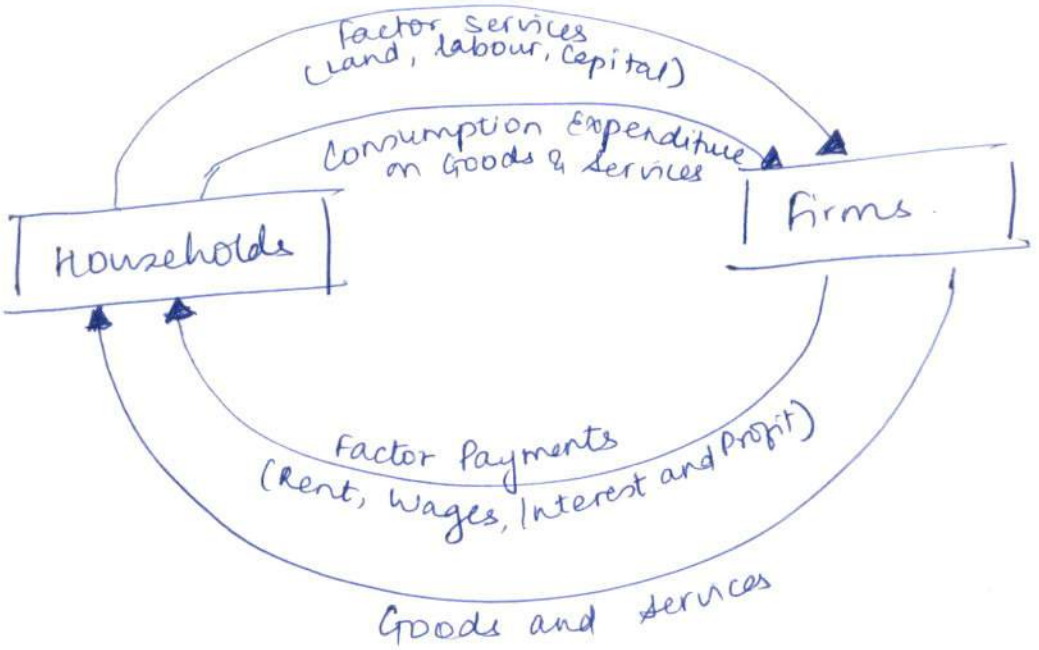
Therefore, credit creation is very much needed in the economy through which it develops and the income is redistributed. Measures should be taken to increase banking habits and objective of financial inclusion through Pradhan Mantri Jan Dhan Yojana should be prioritised.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

9. With the help of a diagram, explain the circular flow of income in a simple economy.

एक रेखाचित्र की सहायता से, सरल अर्थव्यवस्था में आय के वर्तुल प्रवाह (सर्कुलर फ्लो ऑफ़ इनकम) को स्पष्ट कीजिए।

The circular flow of income in a simple economy involves two sectors i.e. firms and households.



- The outer loop of the above diagram shows the real flow i.e. flow of factor services from households to firm and corresponding flow of goods and services to households.
- The inner loop shows money flow i.e. flow of factor payments and for consumption expenditure.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

- In this model, it is assumed that there are no savings and that everything earned is spent.
- It is also assumed that firms produce goods and services and sell entire output to households.

Conclusions of the circular flow of income of a simple economy:

(i) Total production = Total consumption
(ii) ~~Total~~ Factor payment = Factor income
(iii) Consumption Expenditure = Factor income
(iv) Real Flow = Money Flow

Thus, this ~~sect~~ model does not involve Government and external sector and is easy and simple to understand. It depicts how the money ~~flow~~, and goods and services flow in an economy.

Don't write anything this margin
(इस भाग में कुछ ना लिखें)

Don't write anything this margin (इस भाग में कुछ ना लिखें)

10. Explain the meaning of Balance of Payments and give an account of various components included within current and capital account.

भुगतान संतुलन का अर्थ स्पष्ट कीजिए तथा चालू और पूँजी खाते में सम्मिलित विभिन्न घटकों का विवरण दीजिए।

Balance of Payments (BoP) is a systematic account of the transactions done by the country with the rest of the world in a period of one year.

BoP follows the system of double book accounting principles and shows items which are debited or credited.

It comprises of current account, capital account, errors and omissions account and financial account.

The prominent accounts are that of current and capital.

Current Account – This account comprises of

Visible trade
- Trade of goods and services i.e. merchandise trade.

Trade in invisibles
- Trade in services like shipping, transportation
- Grants, aid, gifts,

Don't write anything this margin (इस भाग में कुछ ना लिखें)

transfer payments received and paid, Income receipts and payment to and from abroad

Capital Account

It causes a change in assets or liabilities of the residents of the country or its Government. Components are:

(i) Borrowings and lendings to and from abroad - examples include receipts of loans and repayment of loans,

(ii) Investments to and from abroad - in shares of foreign companies, real estate, etc.

(iii) Change in Foreign Exchange Reserves
These are the financial assets of the Government held in the central bank. A change in reserves serves as the financing item in India's BOP.

- A surplus in capital account arises when credit items are more than debt items - net inflow of capital.
- Deficit capital - net outflow of capital.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

Thus, the BOP accounts help to understand the standing of the country in ~~inter~~ foreign trade which helps in the policy making further.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

11. Explain the demand-pull and cost-push factors of inflation in India.
भारत में मांग-प्रेरित और लागत-जनित मुद्रास्फीति के कारकों को स्पष्ट कीजिए।

Inflation is the general rise in the level of prices of goods and services over a period of time. It is mainly caused by demand-pull factors or cost push factors.

Demand-pull factors of Inflation :

(i) Aggregate demand - When the aggregate demand rises without simultaneous rise in supply pushes the prices up.

For Example - The demand for masks in Delhi during pollution after Diwali and the lack of supply led to its rise in price.

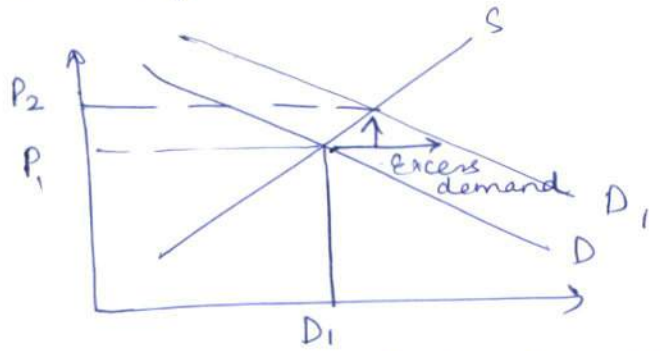
(ii) Monetary factor - Increase in the money supply i.e. too much money chasing few goods situation.

(iii) The rise in Government expenditure is also a factor of demand pull inflation. Rising Government expenditure raises the

Don't write anything this margin (इस भाग में कुछ ना लिखें)

demand and liquidity in the market.

(iv) Depreciation of currency - making exports cheaper also pulls the prices up.



[D - Demand curve, S - Supply curve, P_1 & P_2 are prices].

In the above figure, when the demand rises the demand curve shifts and pulls the price up leading to inflation.

Cost-push factors - This involves the rise in prices due to rise in cost of inputs of factors of production.

(i) Rise in wages - The demand for rise in wages pushes the prices up and creates a wage-price spiral.

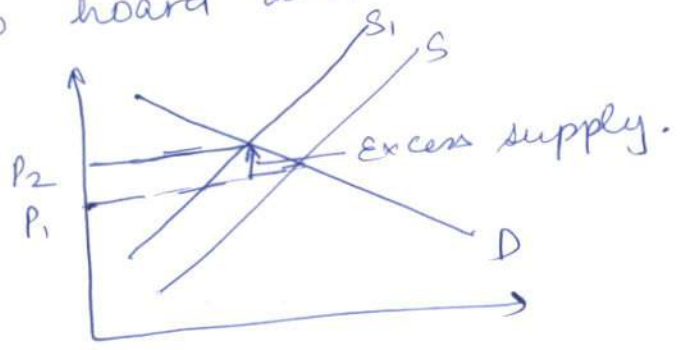
(ii) Rise in price of raw materials - The price rise will make cost of

Don't write anything this margin (इस भाग में कुछ ना लिखें)

production high which producers would like to shift to the consumer by increasing the price.

(iii) Monopolistic profit push factor – where a monopoly of an industry to gain profit ~~leads~~ increases prices.

(iv) Expectation of inflation further pushes up inflation as people show tendencies to hoard and reduce the supply.



Thus, the inflation caused by these factors can be corrected by various fiscal measures, monetary measures and price controls.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

12. Explain the different quantitative and qualitative policy tools used to regulate money supply in the economy.

अर्थव्यवस्था में मुद्रा की आपूर्ति को विनियमित करने के लिए प्रयुक्त विभिन्न मात्रात्मक और गुणात्मक नीतिगत साधनों को स्पष्ट कीजिए।

The money supply in the economy is regulated by the central bank through its monetary policy. The policy uses various tools to control and regulate the supply.

Policy tools

- Quantitative
  - Cash Reserve Ratio
  - Statutory Liquidity ratio
  - Bank Rate
  - Repo Rate, Reverse Repo Rate
  - Open Market Operations
  - Marginal standing facility
  - Call Money Market
- Qualitative
  - Directing
  - Moral suasion
  - Rationing

Quantitative tools

(i) Cash Reserve Ratio - It is the amount required by Banks to be kept with RBI.

→ ↑ CRR → ↓ credit creation

→ ↓ CRR → ↑ credit creation → ↑ money supply

Don't write anything this margin (इस भाग में कुछ ना लिखें)

A 1% difference can inject or take away liquidity of 98,000 crore.

(ii) Statutory Liquidity Ratio - A ratio which commercial banks are required to be kept as investment in securities. Higher the rate, lesser the liquidity.

(iii) Repo Rate - rate at which RBI lends money to banks on an overnight basis

(iv) Reverse Repo - rate at which RBI borrows from the banks. This measure will help to absorb liquidity.

(v) Open Market Operations - the buying and selling of Government securities.

- Buying → Money flows into the economy.
- Selling → Money supply decreases.

(vi) Call Money Market - Term repos and money market used to provide funds to banks on short term basis.

Qualitative tools

(i) Directing banks to follow prudent norms to regulate the money supply

Don't write anything this margin (इस भाग में कुछ ना लिखें)

(ii) Moral suasion - persuade banks to control supply

(iii) Rationing

(iv) Raising marginal requirements for loans.

(v) Credit control measures.

Thus, Central Bank through its various tools help to control and regulate money supply in order for the economy to function properly.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

13. What is liquidity trap? Discuss its implications on the economy.

तरलता पाश (लिक्विडिटी ट्रैप) क्या है? अर्थव्यवस्था पर इसके निहितार्थों की विवेचना कीजिए।

A liquidity trap is a situation in which there are low interest rates and high saving rates.

In this trap, the consumers choose to avoid bonds and keep their funds in savings because of belief that interest rates will rise soon. There's a preference to hold cash rather than debt.

Implications for economy -

(i) Low capital formation - Lack of savings will lead to low investment as the credit created will be low.

(ii) ~~Secondary~~ Credit creation without savings will hamper the economic growth.

(iii) Too much liquidity will render tools of monetary policy ineffective.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

(iv) The idle cash will lead to rise in aggregate demand which will push prices up, leading to inflation.

(v) The distribution from surplus to scarce would not happen.

(vi) The industrial growth will be hampered especially MSMEs due to lack of access to credit.

(vii) Lack of working capital will lead to layoff of workers leading to unemployment.

Thus, liquidity trap is harmful for an economy. Efforts must be made to induce people to save in order for growth of economy.

Don't write anything this margin
(इस भाग में कुछ ना लिखें)

Don't write anything this margin (इस भाग में कुछ ना लिखें)

14. Why is the RBI called as the 'lender of last resort'? What other functions are performed by RBI while acting as a banker to commercial banks and the government?

RBI को 'अंतिम ऋणदाता' क्यों कहा जाता है? वाणिज्यिक बैंकों एवं सरकार के बैंकर के रूप में कार्य करते हुए RBI द्वारा और क्या कार्य सम्पादित किए जाते हैं?

RBI performs various functions in the economy. ~~One of t~~ The important functions like lender of last resort, banker to banks, supervisor and controller of credit, etc.

'Lender of last resort'

RBI performs this function to save the bank who has rippled financially and has no way to sustain itself. RBI through its lending helps to gain the confidence of the public in order for them to have faith in the banking system.

RBI through this function maintains the efficiency and effectiveness of the financial market.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

Banker to commercial Banks and Government -

→ To commercial banks -

(i) Ensures smooth and steady payment settlement system.

(ii) Ensures funds through various facilities like Marginal standing facility, call and Notice Money Market, etc.

(iii) Enhances trust and credibility of the commercial banks.

(iv) It helps ~~and~~ advises and regulates their banking activities.

→ To the Government - the RBI through its surplus transfers funds to Government, pays dividend and also help in their borrowing programme in order to sustain economic activities.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

Hence, RBI is the wheel through which India's economy is functioning. It through its various functions helps in the financial administration of the country.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

15. What are the key issues in fiscal management in India? How can these issues be addressed?

भारत में राजकोषीय प्रबंधन में प्रमुख समस्याएं क्या हैं? इन समस्याओं को कैसे दूर किया जा सकता है?

For better fiscal discipline, the Fiscal Budget and Review Management Act was passed in 2003. The FRBM Act led to inculcation of fiscal discipline among central and state Governments.

However, the fiscal management faces certain issues

(i) The missing of targets time and again

(ii) Doing away with revenue deficit

(iii) Excess dependence on borrowings for budgetary allocations.

(iv) Incorporating huge schemes in the budget ~~and~~ during election year taking away the lion's share of the budget in the beginning. This leads to crunch of funds at the end of financial year.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

(v) The lack of effective parliamentary control due to technicalities present in the budget.

(vi) Absence of a council to supervise the fiscal policy matters.

Addressing these issues would require -

(i) Fixed commitment to targets placed in the budget. The missing of targets to be explained with reasons.

(ii) creation of a fiscal Review council to help supervise & monitor.

(iii) A proper roadmap for budgetary allocations to reduce dependence of borrowings.

(iv) Tax reforms - making GST more inclusive and simple to comply with.

(v) Widen the tax base.

(vi) Including fiscal discipline as a criteria to give grants to states.

Don't write anything this margin
(इस भाग में कुछ ना लिखें)

Thus, through these measures fiscal discipline can be enhanced and issues can be addressed.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

16. What is sterilization? Explain how it is deployed by RBI in stabilizing the money supply against external shocks.

स्थिरीकरण (स्टरलाइजेशन) क्या है? समझाइए कि बाह्य आघातों के विरुद्ध मुद्रा की आपूर्ति स्थिर रखने में RBI द्वारा कैसे इसका उपयोग किया जाता है।

Sterilisation is a monetary action in which central bank seeks to limit the effect of inflow and outflow of capital of money supply. It is mainly done due to exogenous changes or shocks.

This action is usually conducted when the currency is losing too much of its value or the country is facing problems of liquidity.

How it is deployed by RBI -

(i) RBI uses the tool of selling securities in the open market to inject or absorb liquidity. It buys or sells dollars in the market to manage the exchange rate.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

(ii) Use of market ~~sterilisation~~ stabilisation bonds to absorb the the excess liquidity

Thus, RBI in order to control the exchange rate in the foreign market uses sterilisation tools to ensure that the currency doesn't depreciate much. It helps to keep a check on liquidity and ensures that the economy doesn't lose on the forefront in financial market.

Don't write anything this margin
(इस भाग में कुछ ना लिखें)

Don't write anything this margin (इस भाग में कुछ ना लिखें)

17. Bringing out the difference between fiscal deficit, primary deficit and revenue deficit, explain the implications of a high fiscal deficit on the economy.

राजकोषीय घाटा, प्राथमिक घाटा और राजस्व घाटा के मध्य अंतर स्पष्ट करते हुए, अर्थव्यवस्था पर उच्च राजकोषीय घाटे के निहितार्थों की व्याख्या कीजिए।

Fiscal deficit (FD) is the excess of total government expenditure over its revenue.
(FD = Total Government Expenditure − Total Government Revenue)
It shows the extent to which Government needs to borrow to finance its activities.

Primary deficit (PD) - It is the extent to which the Government fails to pay its interest liabilities.
PD = Fiscal deficit − Interest liabilities of the Government.
It is a part of Fiscal Deficit.

Revenue Deficit - is the excess of revenue expenditure over its revenue receipts.
RD = Revenue Expenditure − Revenue receipts
It shows the extent to which the Government can run its day to day business. It is a narrower concept

Don't write anything this margin (इस भाग में कुछ ना लिखें)

than Fiscal deficit.

Implications of high fiscal deficit -

(i) Burden of debt - When the fiscal deficit rises, the burden of debt also rises through deficit financing i.e. through external grants, borrowings or internal borrowings.

(ii) Inflation - the rising fiscal deficit can lead to inflation due to the rising Government expenditure

(iii) Crowding out of private investment leading to fall in the capital formation from private players.

(iv) Hampering economic growth in the future.

Thus, it is highly necessary to keep the deficit under control. As recommended by the N.K Singh Committee, debt to GDP ratio should reach 40% for state Government & 60% for central ~~Govt by~~ Government

Don't write anything this margin
(इस भाग में कुछ ना लिखें)

Key 2023

Don't write anything this margin (इस भाग में कुछ ना लिखें)

18. What do you understand by fiscal policy? Explain its key objectives.

राजकोषीय नीति से आप क्या समझते हैं? इसके प्रमुख उद्देश्यों को स्पष्ट कीजिए।

Fiscal Policy is the building block of macro-economic framework as it provides stability and predictability in the economy.

Fiscal Policy: It is the policy of Government relating to its purchases, tax structure and borrowings.

Don't write anything this margin
(इस भाग में कुछ ना लिखें)

Don't write anything this margin
(इस भाग में कुछ ना लिखें)

Don't write anything this margin (इस भाग में कुछ ना लिखें)

19. Explain, in brief, the various components of budget receipts and expenditure.

बजट प्राप्तियों और व्यय के विभिन्न घटकों को संक्षेप में स्पष्ट कीजिए।

Budget includes systematic demarcation between receipts and expenditure.

Receipts - estimated money receipts

- REVENUE
  - TAX
    - Direct taxes
    - Indirect taxes
  - NON-TAX
    - Profits and dividends received
    - Interest payments received
    - Fees, license fee
    - Fines and Penalties
    - Gifts and grants
- CAPITAL

Capital Receipts - These are receipts which create liabilities or reduce assets. These include

(i) Funds raised from small saving deposits, post offices, PPF

(ii) Borrowings ~~received from~~ internally or externally

(iii) Disinvestment proceeds from sale of stake of ownership.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

Expenditure -

- Revenue -
- Capital

Revenue Expenditure - does not create asset or reduces liability. Example -

(i) Salary of employees
(ii) Interest payments on debt
(iii) Subsidies
(iv) Pensions
(v) Interest payment on loans taken by Govt.
(vi) Grants.

Thus, these usually are incurred on normal running of the Government departments and maintenance of services.

Capital Expenditure - It reduces liability and creates asset (schools, hospitals, etc)

Example -

(i) Expenditure on purchase of land, building, etc.
(ii) Investment in shares, ~~loans by~~ ~~Central~~
(iii) Loans to state Government, foreign Governments.
(iv) Repayment of loans

Don't write anything this margin (इस भाग में कुछ ना लिखें)

This type of expenditure raises capital stock and also helps to enhance its capacity.

Earlier, the budget's receipts and expenditure was divided into plan and non-plan. This classification into revenue and capital is more inclusive and comprehensive and gives a clear picture of accounts of the Government.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

20. Highlight the monetary and fiscal measures that can be taken to address the phenomenon of inflation. Also explain their limitations.

मुद्रास्फीति की परिघटना से निपटने हेतु उठाए जा सकने वाले मौद्रिक और राजकोषीय उपायों पर प्रकाश डालिए। साथ ही, उनकी सीमाओं का भी वर्णन कीजिए।

Inflation, the persistent trend of rising prices can be addressed through various measures like fiscal, monetary and price controls.

Monetary measures to address inflation:

(i) Increase the cash Reserve Ratio - so that more funds are parked in by the banks in RBI and less credit is available. This will reduce the money supply in the economy.

(ii) Sell securities in the open market

(iii) Raise margin requirements and regulate consumer credit

(iv) Demonetisation of currency - of higher denominations. ~~It~~ It is usually adopted when there is abundance of black money.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

(v) Issue of new currency - adopted when there is excessive issue of notes and economy is facing hyperinflation.

Fiscal Measures:

(i) Reduction in unnecessary expenditure

(ii) Increase in taxes to reduce the disposable income of people.

(iii) Increase savings so that there is less income at hand among people.

(iv) Postpone the payment of public dept till there's inflation on rise.

Other measures include controlling price, rationing, increasing production and productivity

Limitations of the above measures:

(i) The use of the above are only short term measures. It does not address the root of the cause of inflation.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

(ii) Reducing the unnecessary expenditure creates problem to demarcate what is necessary or unnecessary

(iii) The raising of taxes leads to a backlash faced by the Government. The tax revenue will only rise to some extent and then fall as there will rise tendencies to evade taxes.

(iv) Demonetisation has its repercussions whereby economic growth reduces, employment falls, etc.

(v) Printing currency also has costs attached. It leads to creation of vicious cycle of inflation.

Thus, these measures should be complemented with reforms in the sector where the goods prices are rising. Long-term measures are needed in order to curb inflation.

12

VISION IAS

www.visionias.in

VISION IAS
R N 01 OCT 2019 NO. 03

GENERAL STUDIES (TEST CODE : 1396)

Name of Candidate	Vedika Bansal		
Medium Eng./Hindi	English	Registration Number	523359
Center	ORN	Date	1.10.2019

INDEX TABLE

Q. No.	Maximum Marks	Marks Obtained
1	12.5	
2	12.5	
3	12.5	
4	12.5	
5	12.5	
6	12.5	
7	12.5	
8	12.5	
9	12.5	
10	12.5	
11	12.5	
12	12.5	
13	12.5	
14	12.5	
15	12.5	
16	12.5	
17	12.5	
18	12.5	
19	12.5	
20	12.5	

Total Marks Obtained:

Remarks:

INSTRUCTIONS

1. Do furnish the appropriate details in the answer sheet (viz. Name, Registration Number and Test Code).
2. There are **TWENTY** questions printed in **ENGLISH**
3. **All questions are compulsory.**
4. The number of marks carried by a question/part is indicated against it.
5. Answers must be written in the medium authorized in the Admission Certificate, which must be stated clearly on the cover of this Question-Cum-Answer (QCA) Booklet in the space provided. No marks will be given for answers written in medium other that the authorized one.
6. Word limit in questions, if specified, should be adhered to.
7. Any page or portion of the page left blank in the Question-Cum-Answer Booklet must be clearly struck off.

EVALUATION INDICATORS

1. Contextual Competence
2. Content Competence
3. Language Competence
4. Introduction Competence
5. Structure - Presentation Competence
6. Conclusion Competence

Overall Macro Comments / feedback / suggestions on Answer Booklet:

1.

2.

3.

4.

5.

6.

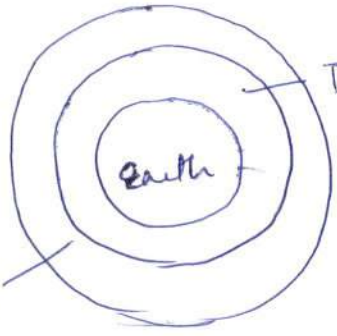
All the Best

Don't write anything this margin (इस भाग में कुछ ना लिखें)

Answer all the questions in NOT MORE THAN 200 WORDS each. Content of the answers is more important than its length. All questions carry equal marks.
12.5X20=250

1. Differentiating between good and bad ozone, write a brief note on ozone pollution. Also, highlight the initiatives taken to mitigate ozone pollution.

Ozone is a secondary pollutant which is formed by the reaction of nitrogen oxide, volatile organic compounds, etc. chemically. Ozone can be categorised into two - good and bad ozone.



Troposphere - BAD OZONE
It is very harmful and pollutes the environment as a Greenhouse gas.

Stratosphere
GOOD OZONE -
It protects the Earth from the harmful ultraviolet radiation and also helps in saving the effect of it.

The ozone in the troposphere causes air pollution and has effect -

(i) On Humans - the ultraviolet radiation absorbed by human body leads to

Don't write anything this margin (इस भाग में कुछ ना लिखें)

diseases like skin cancer, respiratory problems.

(ii) On Vegetation - leads to discolouration, loss in herbaceous plants, loss of feeder stock.

(iii) On Materials - ozone when contributes in acid rain may lead to corrosion of buildings, cracking of ~~tiro~~ rubber, etc.

~~(iv)~~ Thus, ozone when in troposphere creates innumerable harmful effects. To tackle the ozone pollution various initiatives are taken —

(i) INTERNATIONAL INITIATIVES:

(a) Gothenburg Protocol - which lays down for abatement of eutrophication, ground level ozone and acidification.

(b) Vienna Convention and Montreal Protocol to phase out the CFCs in order to save the depleting ozone in the stratosphere.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

(c) Kigali Agreement of Vienna Convention to phase out hydrofluorocarbons.

(ii) NATIONAL INITIATIVES:

(a) SAFAR - System of Air Quality and Weather Forecasting - includes monitoring of ozone as a pollutant in order to reduce the PM 10 and PM 2.5 levels.

(b) National Ambient Quality of Air Standards also incorporates ozone as a pollutant to be monitored and reduced.

(c) Air Quality Index in 14 cities includes ozone.

(d) Graded Response Action Plan of Delhi-NCR to curb pollution also aims to reduce ozone pollution.

Thus, in order to save from harmful effects of ozone pollution, it is essential to reduce the bad ozone and save the good ozone in the stratosphere from depletion.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

2. Give an account of land degradation in India. Also, highlight the steps taken to check growing land degradation in India.

India accounts for 30% of ~~degraged~~ degraded land.

Don't write anything this margin
(इस भाग में कुछ ना लिखें)

Don't write anything this margin (इस भाग में कुछ ना लिखें)

Don't write anything this margin (इस भाग में कुछ ना लिखें)

3. Discuss the role of media in disaster management in India.

Communication and information dissemination is highly required for all phases in disaster management and media has a great role in it to provide leadership for disaster resilience.

Role of Media

- PRE DISASTER
- DURING DISASTER
- POST DISASTER

Pre-disaster:

(i) To make Government realise the priority for expenditure on disaster management (DM) by exposing the inefficiencies in expenditure.

(ii) To be a part in preparedness plans
Example - for information dissemination to public at large through TV, SMS, newspapers, etc.

(iii) For capacity building and awareness generation.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

During disaster:

(i) To maintain the calmness and prevent panic

(ii) To give correct facts to the volunteer organisations, politicians for better reach of victims.

(iii) To inform about the extent of disaster internationally.

(iv) To make the victims safe by informing about the blocked lanes & passages.

Post disaster:

(i) To help the victims meet their closed ones

(ii) ~~B~~ Raise material resources and funding for the ~~vict~~ disaster struck victims.

~~(iii) To~~ Media must cooperate with the Government while telecasting the disaster and its extent. Though, the media has highly positive role to play, it has certain negative roles -

Don't write anything this margin (इस भाग में कुछ ना लिखें)

(i) Biased and sensationalism may creep in by the media during disasters.

(ii) Live coverage of counter-terror operations led to loss in strategy eg - 26/11 Mumbai attacks.

(iii) A great footage to politicians if such during the disaster.

Hence, Media must be regulated and should cooperate during all phases of disaster for better mitigation, preparedness, response and relief. Media has a immense role to make a country disaster resilient.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

4. Write a brief note on Joint Forest Management and its significance. Examine the reasons behind its limited success in India.

Joint Forest Management (JFM) is managing the landscape of forests with involvement of and participation of local communities.

JFM is like a cultural mode of conservation as the rights of indigenous communities is respected and they are greatly involved in managing the forests and the biodiversity together.

Examples include - The Chenchus of Andhra Pradesh succeeded in conservation of forests and for; Idu Mishmi tribe for conservation of tiger landscape.

Significance of JFM:

(i) JFM leads to better cooperation between forest officials and the local communities. This leads to better coordination during times of forest fires.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

(ii) The knowledge of indigenous community can be taken well into account as they will be in a happy position to share due to the respect and involvement.

(iii) Less conflicts among various groups of forest officials and groups.

(iv) Increased biodiversity and conservation of forests.

(v) Less incidences of forest fires

(vi) Good livelihood opportunities and employment for the forest dwellers.

Though, JFM holds various benefits, its limited success due to -

(i) Colonial mode of conservation - The communities are looked down upon as harming the forests usually and are not encouraged to participate or are rather evicted from land.

(ii) The uncooperative attitude of forest officials.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

(iii) Lack of training and capacity building measures to sensitise the forest officials regarding local communities.

(iv) Use of force rather than persuasion makes the local communities always susipicious about the JFM and the mindset towards forest officials remains authoritarian.

(v) Lack of acceptance of various tribes for this mode of conservation.

~~(vi)~~ Hence, JFM is a watershed conservation measure for protected areas and measures like capacity building measures must be sought in order to use the potential of communities.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

5. What are various techniques of recovering energy from waste? Highlight the potential and challenges associated with Waste to Energy plants in India.

Waste to Energy (WTE) is to harness electricity and energy from the various types of waste generated. It is a cleaner ~~and~~ and useful way to utilise the waste of the large landfills.

Techniques of recovering energy from waste:

(i) Incineration - this involves burning of waste at high temperatures in incinerators.

(ii) Pyrolysis - It is the decomposition of materials at elevated temperatures in an inert atmosphere i.e. absence of oxygen.

(iii) Gasification - in the presence of oxygen at elevated temperatures.

Potential of Waste to Energy -

India has the potential to generate more than 600 MW of energy through this technology. According to a study, by CSE, the waste to energy plants are lying defunct. However it has a lot of potentials-

Don't write anything this margin (इस भाग में कुछ ना लिखें)

(i) Less ~~co~~ emission of greenhouse gases and is thus cleaner.

(ii) Reduced landfills and pile of waste generated

(iii) 24x7 electricity unlike solar and wind.

(iv) Coprocessing of energy - better and less power cuts in industries.

(v) Utilise the waste through conversion into energy due to energy deficit.

(vi) Promote energy diversification basket

(vii) Help India achieve reduction of its carbon emissions of 33-35% of GDP by 2030.

Despite the potential, various bottlenecks exist -

(i) Low calorific value - India generates waste without proper segregation. Thus, a lot of wet waste and moisture leads to low calorific value.

(ii) Expensive - A solar and wind energy electricity would cost Rs3-4 kw/ whereas WTE

Don't write anything this margin (इस भाग में कुछ ना लिखें)

would costRs7-8 kwh, making it expensive.

(iii) Lack of finance mechanism for urban local bodies.

(iv) Toxic waste - high toxic waste obstructs the process of conversion and creates the menace of pollution.

Therefore, it is essential to utilise the potential of WTE for providing power to all. The suggestions from NITI Aayog 3 year Action Agenda must be taken to account and waste to Energy Corporation must be established for better utilisation of potential.

Don't write anything this margin
(इस भाग में कुछ ना लिखें)

6. A disaster is the combined effect of hazard and vulnerability. Elaborate with suitable examples.

Disaster is an event led by a natural hazard and the lack of risk capacity to handle the hazard.

Examples

(i) kerala floods - Flood was a natural hazard but was accentuated into a disaster due to man-made factors and vulnerability like dam mismanagement, illegal quarrying, etc.

(ii) Uttarakhand floods of 2013 - Though a hazard, in terms of cloudburst was exacerbated into a disaster due to the rising population and developmental activities in that area.

(iii) chennai floods - due to lack of proper drainage and poor urban planning.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

(iv) Odisha cyclone of 1999 - vulnerability physically due to lack of preparedness and mitigation plans.

(v) Industrial disaster like the Bhopal Gas tragedy turned into chemical disaster due to leakage of gas and proper norms not followed.

With better preparedness and mitigation plans, a disaster can be saved.
For Example - the recent cyclones in Odisha i.e. Fani, a category IV storm led to few casualties only as there was a proper management in action.

Hence, disaster is mainly exacerbated with lack of knowledge and vulnerability. A hazard can turn into a disaster with lack of capacity and vulnerability.

Don't write anything this margin
(इस भाग में कुछ ना लिखें)

Don't write anything this margin
(इस भाग में कुछ ना लिखें)

7. Highlight the factors responsible for loss of biodiversity in recent times. In this regard, also mention the steps that have been taken for conservation of biodiversity.

Biodiversity encompasses flora and fauna. It provides ecosystem services and are essential component of nature.

During recent times, there have been tremendous loss of biodiversity. Factors responsible:

(i) Climate change - leading to extreme weather events causing extinction and dwindling of many species.

(ii) Pollution - causing loss of biodiversity of various marine and river organisms due to plastic and river pollution.

(iii) Deforestation - indiscriminate felling of trees leading to loss of microorganisms, soil erosion. loss of vegetation.

(iv) Agriculture surface runoff - with fertilisers, pesticides causing excessive nutrients and depleting oxygen levels due to eutrophication.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

(v) Ocean Acidification - leading to loss of corals and bleaching.

(vi) Loss of habitat and fragmentation of land due to shift to agriculture to the forests, wetlands, overgrazing etc.

Hence, measures need to be taken to support biodiversity by -

(i) Increasing protected areas of various species

(ii) Joint Forest Management by involving local communities.

(iii) Following cultural mode of conservation

(iv) Establishing various conservation and community reserves.

(v) Reduction of Greenhouse gases through shifting to renewable energy.

(vi) Restoring patches of sacred groves.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

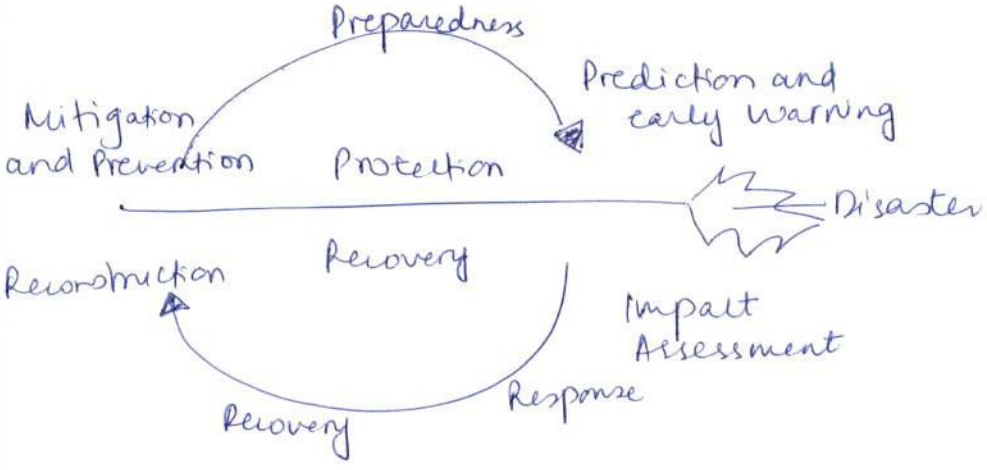
Therefore, it is necessary to support biodiversity by inculcating various conservation measures.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

8. Elaborate on the different phases of the disaster risk management cycle.

Disaster Risk Management Cycle ensures that the disasters are managed effectively and every facet of disaster is addressed.

Disaster Risk Management cycle



Pre-disaster cycle

→ Preparedness involves - creation of a disaster resilient infrastructure and a prepared community in terms of training of what to do during a disaster.

→ Prediction & early warning - also helps

Don't write anything this margin (इस भाग में कुछ ना लिखें)

to prepare for a disaster and helps in mitigating and preventing large loss due to an early warning.

→ Mitigation involves the measures taken to reduce the impact of a disaster when it arises.

(ii) Post disaster cycle involves:

→ Impact Assessment - in order to know the extent of disaster in terms of lost lives, loss of infrastructure, livelihood, employment.

→ Response - to the disaster by providing first aid, food supplies, medical facilities, shelter, etc.

→ Recovery - involves the phase of recovering from the disaster. It involves various rehabilitation measures including physical, social, psychological rehabilitation.

→ Reconstruction - to build back better

Don't write anything this margin (इस भाग में कुछ ना लिखें)

the infrastructure lost, etc. and help to further prevent a disaster from its ~~reoc~~ reoccurence.

Thus, disaster management cycle shift approach from a relief centric to a pro-active holistic disaster preparedness approach.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

9. In context of waste management, what do you understand by Extended Producer Responsibility? Mention the challenges in ensuring its compliance in India.

Extended Producer Responsibility (EPR) in waste management is extending the responsibility of managing waste to the one who produces it in the first place i.e. the producer of the commodity | waste.

In India, it has been extended in the e-waste management rules and plastic management rules. It places the onus of responsibility to the producers to ~~general~~ collect the waste generated, dispose them or recycle them.

Example: In e-waste management rules the producer has to take back the electronic equipment from the consumer for its disposal. A deposit refund scheme is initiated in order to push consumer to return.

Significance of EPR:

i) Scientific disposal of waste

Don't write anything this margin (इस भाग में कुछ ना लिखें)

(2) Reduction in the various forms of pollution

(3) Less toxic waste in the landfills.

However, EPR faces certain challenges:

(i) Lack of targets - no targets in place for the producers to collect back the waste.

(ii) Violation of rules - the rules are violated very frequently.

(iii) Lack of incentives for the producers

(iv) Producers consider it as an additional burden to focus upon.

(v) Expensive - It makes it costly on the part of producers to collect, dispose and recycle.

Hence, though a good practice as followed by Nokia (Planet rakhwale and take it back campaign) and Green warriors of Telangana, it must be

Don't write anything this margin (इस भाग में कुछ ना लिखें)

incentivised in order to promote their responsibility. Private sectors must consider as their social responsibility and ensure a sustainable society.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

10. What are wetlands? Accounting for the reasons behind the disappearance of wetlands, suggest some measures which can be taken for their effective conservation.

Wetlands are areas transition in character i.e. between terrestrial and aquatic ecosystems. They are mainly waterlogged and have hydric soils.

- WETLANDS
  - INLAND
    - MANMADE: Reservoirs, Ponds
    - NATURAL: Lakes, Oxbow lakes
  - COASTAL
    - NATURAL: Estuaries, Coastal bays, Tidal marsh, Mangroves, Backwater, Creeks
    - MAN MADE: Saltpans, Acquaculture

Wetlands are highly essential as they regulate waterflow, mitigate floods, purify and recharge acquifers, nutrient recycling, etc.

Reasons for their disappearence:

(i) Human-induced developments leading

Don't write anything this margin (इस भाग में कुछ ना लिखें)

to conversion of wetlands for housing and non-agriculture purposes. Eg - 40% of mangroves in Gujarat are lost due to housing and non-agriculture projects.

(ii) Overgrazing by cattle

(iii) Encroachment of wetlands for agricultural purposes.

(iv) Illegal fishing leading to depletion of various marine population.

(v) Pollution - water, ground and soil pollution leading to their disappearance due to harmful metals, fertilisers, etc.

(vi) Shrimp fishing and acquaculture practices.

(vii) Deforestation - leading to loosening of soil structure and loss of vegetation.

Measures for effective conservation:

(i) Enforcement of rules and laws - to prevent the development activities in areas of threat. For example - Enforcement of CRZ regulations leading to the demolition of flats build near the ~~[illegible]~~ Vembanad lake.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

(ii) Promoting growth of soil bind grasses

(iii) Awareness generation for the use of wetlands and their depletion to induce a grassroot movement.

(iv) Ripravian buffers must be created to save the wetlands from harmful fertilisers.

(v) Involvement of local bodies and funds for them to monitor the regulation.

(vi) Hence, wetlands are in rising threat of destruction. For a sustainable environment, measures should be taken for their conservation as they are highly productive ecosystems.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

11. How does the National Disaster Management Plan (2016) aim to make India disaster resilient?

National Disaster Magement Plan aims to make disaster resilient India by integrating the plan with Sendai Framework, Paris Agreement and sustainable development goals.

How it aims? -

- Disaster Risk Reduction
- Inter-agency coordination
- Four Priority areas of NDMP for disaster resilience
- Capacity building measures
- Investing in disaster risk reduction - structural & Non-structural.

- Integration - NDMP aims at vertical and horizontal integration of roles for disaster resilience.
- Defines Activities - like information dissemination, relief, response measures
- Role of Media - It also inculcates media

Don't write anything this margin (इस भाग में कुछ ना लिखें)

in its plan and aims to regulate it through various measures.

- It provides a flexible action plan for all disasters to all the agencies for disaster management.
- Inclusion of technology for resilience in its structural measure like use of drones, GPS, satellite imagery, etc.
- Capacity building measures to create a repository of knowledge and institutions for training, ~~workshops~~ workshops to inculcate the preparedness and mitigation plans.
- Inclusion of disaster management in all sectors and developmental activities.
- "To build back better" after disaster during the recovery and reconstruction phase.

Hence, the NDMP plan lays a roadmap to prepare India for

Don't write anything this margin (इस भाग में कुछ ना लिखें)

disaster resilience infrastructure and society. However, it needs to be supplemented with various plans with clear cut targets in order to handle the disaster effectively.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

12. Highlight the reasons behind frequent occurrence of floods in India. Also, mention the NDMA guidelines for management of floods.

In India, more than 40 million hectares of land is prone to floods. There have been recent occurances of floods & urban floods in states of Assam, Bihar, Karnataka, Kerala, Chennai, Mumbai, etc.

Reasons behind frequent occurrence:

(i) Extreme weather events - due to climate change has led to drought and flood at the same time.

(ii) High amount of rainfall received at one go and improper forecasting

(iii) Dam mismanagement - The recent floods of Kerala can be traced to this reason as ~~man~~ dams were mismanaged and led to floods. (eg - Idukki dam)

(iv) Developmental activities like construction in the high tide areas, quarrying, illegal mining trigger landslides and floods.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

iv) Drainage - Many drains are choked due to the waste leading to insufficient drainage and diversion of water.

Floods lead to havoc and create huge loss in terms of lives lost, damage to infrastructure, loss of livelihoods and employment.

NDMA has praided certain guidelines for management of floods:

- STRUCTURAL
- NON-STRUCTURAL

Structural Measures:

(i) Adequate silting through desilting and dredging measures.

(ii) Creation of flood banks, flood levies and embankments to mitigate the floods.

(iii) Diversion of water - eg. supplementary drain in Delhi, ~~the flood system~~

(iv) Proper drainage channels for water

Don't write anything this margin (इस भाग में कुछ ना लिखें)

to flow easily.

Non-structural measures:

(i) Flood zoning - identifying various areas into zones

(ii) Flood proofing of structures

(iii) Capacity building measures to reduce risks by providing training.

(iv) Flood mapping to identify the flood prone districts.

(v) Drawing up of district level plans for mitigation of floods.

Therefore, floods can be managed before it turns into a disaster.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

13. Assess the vulnerability of India's forests to forest fires and suggest measures to tackle it.

According to State of Forest Report, more than 50% of forests in India are prone to fires.

Vulnerability of India's forests to fires :

(i) Extreme heat events and climate change leading to fires.

(ii) Traditional methods like shifting cultivation induce fires.

(iii) Deforestation - the forests which binds the soil when removed for various activities leave the vegetative cover unprotected.

(iv) More than 95% of fires are man-made in India.

Don't write anything this margin
(इस भाग में कुछ ना लिखें)

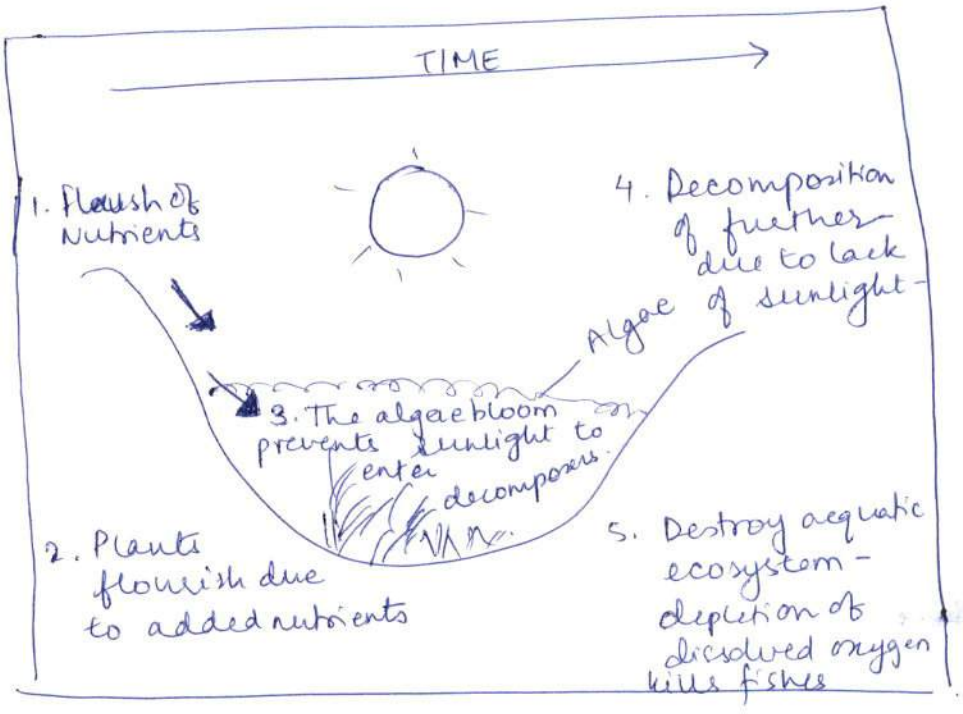
Don't write anything this margin (इस भाग में कुछ ना लिखें)

Don't write anything this margin
(इस भाग में कुछ ना लिखें)

14. What is eutrophication? Highlighting its ecological consequences, suggest measures to tackle it.

Eutrophication is a syndrome of ecosystem i.e. response to addition of nutrients natural or artificial through agriculture runoff, fertilisers, etc.

It is a leading cause of algae bloom.



Ecological sequences

(1) Ecosystem -

- It leads to degradation of ecosystem by changing the aequatic ecosystem to terrestrial habitat.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

- The detritus layer preventing sunshine to enter promotes the growth of fungi
- kills acquatic organisms like fishes due to depleted oxygen level.

(2) Humans - the food consumed reaches in the human chain leading to bio magnification.

(3) Toxicity - The bloom releases certain toxins and dioxins leading to massive kills of marine organisms and reduction of growth in the food web.

~~(4) Other consequences~~

(4) Coral bleaching - It leads to destruction of the tropical rainforests coral reefs.

(5) Soil contamination.

Thus, eutrophication may be naturally or culturally induced. The productivity is high but the creation of harmful algae blooms leads to various harmful consequences. The measures to tackle -

Don't write anything this margin (इस भाग में कुछ ना लिखें)

(i) Riparian buffer - in order to concentrate the nitrates before it reaches the water.

(ii) Nitrogen testing and modelling

(iii) Efficient use of fertilisers through checking health of the soil

(iv) Integrated Pest Management to reduce the excessive use of pesticides and weedicides.

(v) Sustainable agriculture practices and climate smart to enhance the resilience. Example - Organic farming

(vi) Use of practices of micro irrigation, drip and sprinkler method to prevent the agriculture surface runoff by over irrigation

Don't write anything this margin (इस भाग में कुछ ना लिखें)

15. River pollution is a major environmental issue in India, which has far-reaching consequences. Discuss while enumerating the various sources of river pollution.

According to a CPCB report, India has 351 polluted river stretches, ~~of India~~ 42 rivers are critically polluted.

River pollution is a menace and has ~~far reaching consequences and sources~~ following sources:-

~~(i) SOURCE - Domestic waste from households and sewage~~

SOURCES

- Point - can be traced
- Non-Point - cannot be traced
  - Agricultural surface runoff fertilisers, pesticides
  - Industry chemicals hot water
  - Households domestic kitchen waste and sewage

(i) Agricultural sources - harmful pesticides, insecticides, fertilisers are washed away and reach the river.

Consequence - These fertilisers leach.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

and cause river and groundwater pollution.

- Concentration of nitrates rises which may reach the human body and cause blue baby syndrome.
- Eutrophication leading to harmful algae blooms.

(ii) Industry - The disposal of heavy metals, hot and cold water leads to changes in the chemistry of river. Extremely hot and cool source leads to thermal pollution and harms the aequatic system by reducing the dissolved oxygen and causing massive reduction in plankton production.
Also, metals like arsenic and cadmium cause harmful effects on human health, leading to black foot disease, neuro disorders, itai itai disease.

(iii) Household wastes and domestic sewage includes wet waste, e-waste,

Don't write anything this margin (इस भाग में कुछ ना लिखें)

plastic, ~~etc~~ waste generated during festivals, etc

Consequence - ~~The~~

(a) The insegregation of waste creates problems and leads to large dumping of waste in the rivers.

(b) Waste generated during festivals like kumbh Mela in Ganga with various flowers, chemicals, agarbattis, etc. is harmful for the fishes and marine organisms.

(c) Plastic waste being dumped being ingressed by fishes leading to their deaths.

(d) Decrease in the quality of water leading to water borne diseases.

Thus, river pollution should be checked and a zero waste lifestyle should be adopted i.e. 4R2C - Rethink, Reduce, Reuse, Recycle and compost to reduce the waste being dumped in rivers.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

16. India has witnessed increased instances of human-wildlife conflict in the recent years. Stating the reasons behind it, mention ways in which it can be averted.

The Ministry of Environment recently tabled in the Lok Sabha that more than 2250 deaths have occured due to elephants and 224 deaths claimed by tigers.

Other instances of conflict include Man-frog conflict in Andaman and Nicobar Islands, Tiger in Pilibhit Reserve, etc.

Reasons behind the Human Wildlife Conflict (HWC)

(i) Loss of habitat and fragmentation - due to various developmental activities like building roads, railway lines, etc. have encroached upon their land and this has led the animals to move into other areas.

(ii) Land use changes with construction of canals, riverbanks, irrigation providing productive forage to animals like elephants.

(iii) Increase in the population - Various

Don't write anything this margin (इस भाग में कुछ ना लिखें)

ungulates like blackbuck which were earlier dwindling have increased in population. This has created conflict in North west and central India.

(iv) Outside the protected areas - More than 29% of tigers are outside protected areas.

(v) Extreme weather events like droughts leading them to migrate. Example - increasing conflict between man and lions due to drought.

(vi) Practice of translocation

(vii) Adaptability - Many animals like leopards have started adapting to the human environment.

HWC leads to an anti conservation and antipathy towards animals. It should be averted by the following methods:-

(i) Following a landscape approach

Increase in the space for example of elephants by creating corridors

Increase the food by prolific breeding

Don't write anything this margin (इस भाग में कुछ ना लिखें)

(ii) A united effort and community participation by creating awareness.

(iii) Use of technology – use of GPS tracking collars, SMS to community members when in threat, CCTV cameras, etc.

(iv) Biofencing of cactus to create boundaries rather than of electrocution.

(v) Immuno contraception methods

(vi) Collaboration with international agencies and inter agency coordination.

(vii) Culling and mass sterilisation programmes as last resort and only when needed.

Hence, in order to curb HWC, it is essential that a holistic and multi-stakeholder approach is followed as the way we treat animals shows what type of nation we are. A landscape approach is the need of the hour.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

17. Provide arguments both in favour of and against adoption of Genetically Modified (GM) crops on a large scale in India.

GM crops are which have been altered for durability or nutritional purpose. The gene is altered to provide various benefits.

Arguments in favour:

(i) Crop insurance: It provides crop protection and insurance to farmers and provides increasing tolerance of crops to various risks like hail, extreme heat, pests, disease, etc.

(ii) Economic benefits - The farmer earns better and is secured. It also provides better yield.

(iii) Global Acceptance - Many countries like US and Canada are producing GM crops on a large scale.

(iv) GM oil - Already, India imports a huge amount of oil which is genetically altered.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

(v) The Bt-cotton resistance to Pink Ballworm has led India to become the largest producer of cotton in the world.

(vi) Solve food security problem by increase in production

Arguments against GM crops:

(i) Health -

- GMO and liver - various rats examined have shown harmful effects on liver.
- Reproductivity issue and infant mortality
- Insufficient knowledge about the effect as clinical trials on humans are not done.

(ii) Environmental effect -

- Soil and water contamination
- May lead to cross pollination and creation of superweeds.
- Development of new virus strains and the pest developing resistance.

(iii) Patenting of GM crops and monopolising it by large farmers may lead to neglect to small farmers and creating misery for them.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

(iv) Pesticide poisoning - Recently, in Maharashtra 60 farmers died due to glyphosphate poisoning.

(v) Inadequate safety mechanisms and lack of transparency.

(vi) Lack of adequate labs for testing before introducing it on a large scale.

Therefore, GM crops though is a stormbreaking technology may have various adverse impacts. A National Policy is required with involvement of various stakeholders, academicians, civil society groups for better discussion.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

18. Delineate the regions vulnerable to landslides in India. Also highlighting the reasons behind occurrence of landslides, suggest some mitigation measures.

More than 12% region of India is vulnerable to landslides.

Vulnerability -

(i) Very high vulnerable zone - Himalayas, Western Ghats, whole of North East India.

(ii) High vulnerable zone - Includes areas of eastern Ghats

Occurence of landslides Reasons -

(i) Himalaya region prone to landslides due to the seismicity induced by the plate convergence movement.

(ii) Hydraulic seismicity induces landslides i.e. through dam water and the tension.

(iii) Earthquake and other stress movements raise landslides vulnerability.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

(iv) Developmental activities in the mountainous regions loosens the soil and makes them vulnerable to landslides

Mitigation measures

(i) Landslide zonation and mapping for identification of the prone districts and areas.

(ii) Regulation of the construction activities by enforcing the laws.

(iii) Capacity building measures by providing training to people

(iv) Creation of disaster resilient infrastructure.

(v) Involvement of various stakeholders like academicians, geologists, ~~etc~~ etc.

~~(vi) Creation of~~

(vi) Early warning system like the one recently installed in Sikkim.

Don't write anything this margin
(इस भाग में कुछ ना लिखें)

Therefore, various holistic and pro active measures are need of the hour.

Don't write anything this margin
(इस भाग में कुछ ना लिखें)

19. Bring out the importance of sustainable sand mining in India. Mention the steps taken by the government in this regard.

Sand mining involves removal of sand from river banks, shores, coasts for construction activities, earthenpots, building material, etc.

Illegal sand mining has led to certain issues and hence it is important for sustainable sand mining as-

(i) Helps in preventing the river to change its course - sand provides buffer to rivers.

(ii) It recharges acquifers and helps to regulate the groundwater level.

(iii) It sustains the environment of gharyals and other wildlife who nest and bask in sand.

(iv) Helps the microorganisms to retain the environment.

(v) Provides sustainable livelihoods

Don't write anything this margin (इस भाग में कुछ ना लिखें)

to the farmers. For example - illegal mining in the river Bharatapuzzha of Kerala, a region which had plenty of nutrients for rice production is scarce.

(vi) It helps in nutrient recycling and regulating water flow.

(vii) Helps in conservation of biodiversity.

(viii) There is no revenue foregone by ~~various~~ the exchequer.

Various measures have been taken to promote sustainable sand mining like -

(i) State Governments have put in place various laws in order to determine and demarcate areas where and the potential of sand mining.

(ii) Sand Mining Rules & Regulations by the Centre which provides for scientific data collection, where to mine and also provides certain exemptions.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

~~The~~ The measures should be further strengthened by strict compliance of rules in order to save from the illegal mining.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

20. The Paris Agreement addresses crucial areas necessary to combat climate change. In this context, identify some of the key aspects of the Agreement.

Paris Agreement is a successor to the Kyoto Protocol of UNFCCC. It is an agreement laying down targets for reducing the impact of climate change.

Key Aspects of the Agreement:

(i) The countries have set a target to keep the global temperature rise well below 2°c of pre-industrial levels.

(ii) To pursue efforts to reduce by 1.5°c ~~only~~ further

(iii) Nationally determined contributions by developed and developing countries in order to reduce the greenhouse gases emission.

Example - India has contributed to reduce 33-35% of 2005 level by 2030.

(iv) Developed countries have promised

Don't write anything this margin (इस भाग में कुछ ना लिखें)

to provide the developing countries finance. They are to mobilise $100 billion for mitigation and adaptation measures for developing countries.

(iv) Technology framework, capacity building framework have been put in place.

(v) Earlier, only developed countries had binding contributions in kyoto Protocol, now developing countries are also bound.

(vi) The agreement aims to place an inclusive agreement post the retirement of second commitment to kyoto protocol.

The Paris Agreements tends to place a rule book in order to combat climate change issue for countries to adapt for sustainable development.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

30

VISION IAS

www.visionias.in

VISION IAS
R N 14 JAN 2020 NO. 03

GENERAL STUDIES (TEST CODE : 1403)

Name of Candidate	Vedika Bansal		
Medium Eng./Hindi	English	Registration Number	523359
Center	ORN	Date	14/01/2020

INDEX TABLE

Q. No.	Maximum Marks	Marks Obtained
1	10	
2	10	
3	10	
4	10	
5	10	
6	10	
7	10	
8	10	
9	10	
10	10	
11	15	
12	15	
13	15	
14	15	
15	15	
16	15	
17	15	
18	15	
19	15	
20	15	

Total Marks Obtained:

Remarks:

INSTRUCTIONS

1. Do furnish the appropriate details in the answer sheet (viz. Name, Registration Number and Test Code).
   उत्तर पुस्तिका में सूचनाएं भरना आवश्यक है (नाम, प्रश्न–पत्र कोड, विद्यार्थी क्रमांक आदि)।
2. There are **TWENTY** questions printed in **ENGLISH & HINDI**
   इसमें बीस प्रश्न हैं अंग्रेजी और हिन्दी में छपे हैं।
3. **All questions are compulsory.**
   सभी प्रश्न अनिवार्य हैं।
4. The number of marks carried by a question/part is indicated against it.
   प्रत्येक प्रश्न/भाग के अंक उसके सामने दिए गए हैं।
5. Answers must be written in the medium authorized in the Admission Certificate, which must be stated clearly on the cover of this Question-Cum-Answer (QCA) Booklet in the space provided. No marks will be given for answers written in medium other that the authorized one.
   प्रश्नों के उत्तर उसी माध्यम में लिखे जाने चाहिए जिसका उल्लेख आपके प्रवेश पत्र में किया गया है और उस माध्यम का स्पष्ट उल्लेख प्रश्न–सह–उत्तर (क्यूसीए) पुस्तिका के मुख्य पृष्ठ पर अंकित निर्दिष्ट स्थान पर किया जाना चाहिए। उल्लिखित माध्यम के अतिरिक्त अन्य किसी माध्यम में लिए गए उत्तर पर कोई अंक नहीं मिलेंगे।
6. Word limit in questions, if specified, should be adhered to.
   प्रश्नों में शब्द सीमा, जहाँ विनिर्दिष्ट है, का अनुसरण किया जाना चाहिए।
7. Any page or portion of the page left blank in the Question-Cum-Answer Booklet must be clearly struck off.
   उत्तर पुस्तिका में खाली छोड़ा हुआ पृष्ठ या उसके अंश को स्पष्ट रूप से काटा जाना चाहिए।

EVALUATION INDICATORS

1. Contextual Competence
2. Content Competence
3. Language Competence
4. Introduction Competence
5. Structure - Presentation Competence
6. Conclusion Competence

Overall Macro Comments / feedback / suggestions on Answer Booklet:

1.

2.

3.

4.

5.

6.

All the Best

Don't write anything this margin (इस भाग में कुछ ना लिखें)

1. Explain how the theory of Plate Tectonics helps in understanding the mechanism of volcanism. **(150 words) 10**
व्याख्या कीजिए कि प्लेट विवर्तनिकी सिद्धांत ज्वालामुखी की क्रियाविधि को समझने में किस प्रकार सहायता करता है।

Volcano is a feature in the earth's crust where magma is squeezed onto the Earth's surface. Most volcanoes form at the boundaries of the Earth's tectonic plates.

Plate tectonics are huge slabs of the Earth's crust and upper mantle. These are constantly moving at a very slow rate. Volcanoes are most common in these geologically active boundaries.

The two types of plate boundaries that are most likely to produce mechanism of volcanism are:

(i) Divergent boundaries - Tectonic plates move apart from one another. Magma continuously moves up the mantle into the boundary, building new plate material.

Example: Mid-Atlantic Ridge - North American

Don't write anything this margin (इस भाग में कुछ ना लिखें)

and Eurasian plates are moving in opposite direction. The ridge forms continous volcanic mountain range.

↳ African plate boundary home to volcanoes such as Mt. kilimanjaro.

(ii) Convergent boundaries - plates move towards each other and collide. The collision forces denser plate to ~~sqt~~ sink. As the denser plate subducts, pressure and temperature surrounding increases, which causes melting of plate and further volcano.

Example - volcanic arcs in the Ring of Fire.

There are various hot spots of volcanoes that exists away from plate boundaries due to exceptionally hot areas fixed deep below earth's mantle. Thus, the study of plate tectonics provides inputs to mechanism of volcanism.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

2. Discuss how technology can help India cope with disasters.

(150 words) 10

चर्चा कीजिए कि प्रौद्योगिकी भारत में आपदाओं से निपटने में कैसे सहायता कर सकती है।

Technology has provided immense potential to mankind to manage disasters. It is an indispensible tool to disaster risk assessment and reduction through use of maps, data, etc.

Types of technology to help cope:

(i) Geographica information system –

PRE-DISASTER	DURING	POST DISASTER
• Build vulnerability maps and demarcate zones of hazard • Assess areas for providing shelter • Help in community preparedness by providing signs for safety	• Planning of rescue and evacuation (Example - used during landslide in Sikkim) • Assess if disaster can spread and provide warnings	• Assessment of loss for rehabilitation • Assess the damage to build back better.

(ii) Early warning systems – for each disaster can help in better preparedness and mitigation strategies. Example – accurate prediction of cyclone Phailin

Don't write anything this margin (इस भाग में कुछ ना लिखें)

in Odisha saved thousands of lives.

(iii) Wireless communication system and disaster proofing of telecommunications – will help to disseminate information quickly and timely and maintain connection

(iv) Remote sensors to help predict the disaster as well as to assess losses.

(v) Satellite Radios to communicate and provide early warnings especially to fishermen in the coastal areas. The recent introduction of GEMINI will help to reduce disaster impact in the deep waters.

(vi) Internet and Social Media – global dissemination of information, crowdsourcing and donation for affected, maintain contact with closed ones. Example – Facebook feature of safety check.

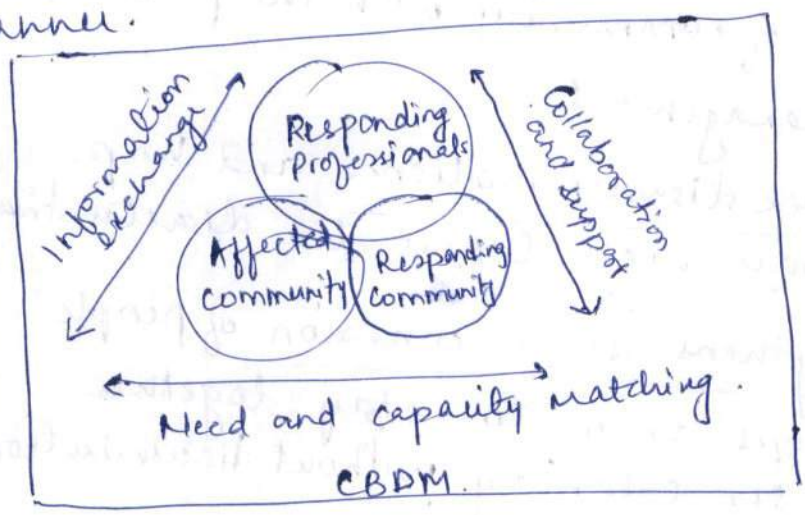
Thus, technology provides evidence based planning and helps in all phases of disaster management – preparedness, prevention, mitigation, reconstruction.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

3. Bring out the importance of community-based disaster management in India. **(150 words) 10**

भारत में समुदाय-आधारित आपदा प्रबंधन के महत्व को स्पष्ट कीजिए।

Community Based disaster management (CBDM) involves programs, interventions and policies designed by people in at-risk localities to handle disasters in an effective manner.



CBDM involves
- → integrated approach
- → decentralised, bottom up and dynamic
- → Multi-stakeholder participation (NGOs, SHGs, CBOs, etc)
- → Inclusive, marginalised sections involved.
- → Participation of local community

Don't write anything this margin (इस भाग में कुछ ना लिखें)

Importance -

(i) First responder and last stander -
The local community is the first to respond during disaster and stands till the end.

(ii) Cost effective - as it mobilises resources and knowledge from within the community.

(iii) Participatory - CBDM integrates traditional knowledge of community with the plans of disaster management.

(iv) Improves disaster resilience and helps to prepare well before the disaster strikes

(v) Strengthens social cohesion of people and helps them to stay together during the calamity without discrimination

(vi) Post-disaster - CBDM approach helps to rehabilitate economically and psychologically

(vii) Reduce the impact as the disaster management force will arrive much later than the help from local people.

CBDM approach is the need of the hour and the Hyogo Framework also stresses the need to strengthen local communities. Successful examples include the Kathmandu Earthquake Risk Mitigation Project.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

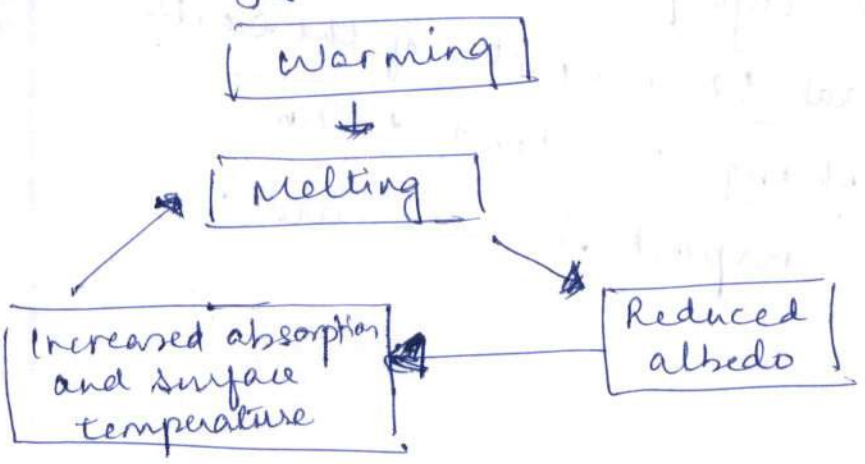
4. What is ice-albedo feedback and how is it related to climate change?

(150 words) 10

आइस-एल्बिडो फ़ीडबैक क्या है और यह जलवायु परिवर्तन से किस प्रकार संबंधित है?

Ice-albedo feedback is a positive feedback process where a change in the area of glaciers, ice caps and sea-ice alters the albedo and surface temperature of the planet. It affects the global climate.

Ice is reflective and some of the energy received is reflected back to space. However, warming reduces the albedo and increases the absorption of solar energy.



Relation to Climate change -

- Due to natural and anthropogenic causes, there has been rising menace

Don't write anything this margin (इस भाग में कुछ ना लिखें)

of climate change. Human development interventions has led to rise in greenhouse gases and the associated rise in temperature.

- The rise in temperature leads to accelerated melting of glaciers and ice-caps. This leads to the eustatic rise of sea level and more land being exposed to warming.
- The increased absorption repeats the entire cycle, thus leading to overall rise in the earth's temperature.

Therefore, cryosphere can be said as the "natural thermometer of the earth" as any change can lead to an enormous impact in area and scale.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

5. Why has there been an increase in the frequency of Glacial Lake Outburst Floods across the world? Highlight the measures, which can be taken to tackle these floods. **(150 words) 10**

विश्व भर में ग्लेशियल लेक आउटबर्स्ट फ्लड की आवृत्ति में वृद्धि क्यों हुई है? ऐसे बाढ़ से निपटने के लिए अपनाए जा सकने वाले उपायों को रेखांकित कीजिए।

Glacier Lake Outburst Floods (GLOFs) are a release of meltwater, moraines and ice-dammed lakes due to dam failure. They are a major concern in India, Bhutan, Tibet, Pakistan and Nepal.

Rising frequency of GLOFs -

(i) Global warming - the accelerated rise in temperature has led to retreat of glaciers and fragmentation by increase in the number of glaciers.

(ii) Radiative balance is disturbed i.e. the amount received and emitted by earth has led to rapid melting

(iii) Anthropogenic causes - Human interventions like development projects, mass tourism practice of slash and burn type of farming.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

(iv) Increasing erratic and unpredictable monsoon rainfall pattern and increased climate variability

(v) Black Carbon - important factor of melting ice and reducing albedo. It is due to the incomplete combustion of fossil fuels.

GLOFs Impact
- Societal - loss of livelihood, rise in sea level, loss of infrastructure, etc.
- Ocean circulation - reduce salinity
- Geomorphology - influence erosion accumulation & sediment dynamics.

Thus, various measures need to be adopted to control floods -

(i) Early warning systems to provide timely information

(ii) Mitigation measures - Better community preparedness, vulnerability assessment, GLOFs hazard mapping, etc.

(iii) Preventive measures - dam remedial measures like check dams, open cuts, artifical dams, etc.

(iv) Remote sensing for accurate prediction

(v) More research for evidence based planning

(vi) Inter-agency coordination, like ISRO provides input via satellite imagery.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

6. Give an account of the increasing frequency of cyclonic activity in the Arabian Sea region. (150 words) 10
अरब सागर क्षेत्र में चक्रवाती गतिविधि की बढ़ती आवृत्ति का विवरण प्रस्तुत कीजिए।

Arabian sea region is less prone to cyclones than Bay of Bengal due to the cooler sub-surface temperature. It witnesses ~~one~~ severe cyclone once in 4-5 years. However, there has been rise in frequency like 2019 faced cyclone Kyarr and Maha.

Reasons for the rising frequency -

(i) Geographic location and global warming -
↳ Receives less freshwater from rivers than Bay of Bengal due to many east flowing rivers.
↳ Enclosed nature → more evaporation
↳ Rise in carbon dioxide emissions leading to more warming.

(ii) Aerosols - rise in aerosols has been more than six-fold leading to accelerated temperatures.

(iii) Indian Ocean Dipole - is an irregular oscillation of warmer temperatures in the

Don't write anything this margin (इस भाग में कुछ ना लिखें)

eastern Indian Ocean. Positive IOD leads to warmer than temperatures in the Arabian Sea region than Indonesian region. Arabian sea witnessed highest positive IOD in recent years.

(iv) Wind sheer or the change in the wind speed and direction - Arabian sea has witnessed strong vertical winds.

(v) El-Nino Modoki conditions have also led to cyclogenesis in the Arabian Sea region.

Thus, there has been rise in frequency of cyclones in Arabian Sea region. Earlier, it was limited to Gujarat coast. However, now the impact is spreading towards ~~Gujarat &~~ karnataka and kerala as well.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

7. Explain the phenomena of Sudden Stratospheric warming witnessed in recent years. How does it affect the ozone hole formation over Antarctica? **(150 words) 10**

हाल के वर्षों में देखी गई आकस्मिक समतापमंडलीय तापन की परिघटना की व्याख्या कीजिए। यह अंटार्कटिका के ऊपर ओजोन छिद्र के निर्माण को किस प्रकार प्रभावित करता है?

Sudden stratospheric warming (SSW) is a phenomenon in which warming occurs high up in the stratosphere. It is a rare phenomenon in the southern Hemisphere ~~Pole~~ whereas it occurs on a two year average in the Northern Hemisphere.

Phenomenon of SSW

- It has led to a rise in more than 40°C in south Pole and may further lead to hot, dry winds and drought conditions in Australia.
- SSW is caused due to the weakening of the stratospheric polar ~~winds~~ vortex and associated westerly winds.
- In the southern Hemisphere, when the southern ocean gets heated, there is difference of temperature in the southern Ocean and the south Pole. This leads

Don't write anything this margin (इस भाग में कुछ ना लिखें)

to movement of wave of air in the south pole. It gradually gets weakened.

- SSW may lead to wider impact when winds will move from southern ocean towards the equator.

Affect of ozone hole formation in Antarctica -

- As per NASA report. Antarctica ozone hole is smallest in the past few months since 1982.
- ~~When the sun marches southwards~~ in ~~spring~~, In late winter, Antarctica gets sunshine which accelerate the reaction of sunlight on ozone depleting substances
- However, due to warming, there is absence of stratospheric clouds which limit the process of reaction of ozone depleting substances.
- It is positive as it doesn't expand the ozone and protects the UV layer from entering the earth.

However, this is not due to global change but only due to SSW.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

8. Explain the concept of volcanic winter giving examples. **(150 words) 10**
उदाहरण प्रस्तुत करते हुए वोल्कैनिक विंटर की अवधारणा की व्याख्या कीजिए।

Volcanic winter is a reduction in the global temperatures caused by volcanic ash and sulphuric acid.

The reduction in temperatures raises the earth's albedo i.e. the increasing the reflection of sun's rays. This would lead to further cooling. It influences the regional climate and over a time, global climate.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

Don't write anything this margin (इस भाग में कुछ ना लिखें)

9. Bring out the prominent evidences that have been put forward in support of sea-floor spreading. **(150 words) 10**
सागरीय-अधस्तल विस्तार के समर्थन में प्रस्तुत किए गए प्रमुख साक्ष्यों का उल्लेख कीजिए।

Hess proposed 'sea floor spreading' after the analysis of the magnetic rocks. He argues that new oceanic crust is being formed continuously at mid-oceanic ridges.

The constant eruptions at the crest causes oceanic crust to rupture and new lava wedge out of it, pushing the oceanic crust on either side. The ocean floor thus spreads. The denser crust sinks and gets consumed.

Prominent evidences in support -

(i) The volcanic eruptions common in mid-oceanic ridges.

(ii) Analysis of rocks on either side of the crest - are similar in terms of chemical composition, physical properties.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

(iii) The oceanic plate is thinner and much younger than continental plates.

(iv) Sediments of ocean crust are unexpectedly thin.

(v) Shallow earthquakes in the deep trenches of the mid-oceanic ridges.

Thus, the concept of sea floor spreading revived the interest of formation of continents and oceans and its distribution and led to further studies like Plate tectonics.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

10. Write a brief note on Earth's magnetism and its role in protecting the Earth from solar winds. **(150 words) 10**

पृथ्वी के चुंबकत्व तथा सौर पवनों से पृथ्वी की रक्षा में इसकी भूमिका पर संक्षिप्त टिप्पणी लिखिए।

Earth acts like a large spherical magnet, surrounded by a magnetic field that changes with time and location.

The field seems to be generated by a dipole magnet located at the centre. The axis is offset from axis of rotation by approximately 11°.

The most accepted theory of magnetism is that of Dynamo effect. It links the magnetism with motion of metallic fluids in earth's outer core.

Earth's outer core is made up of molten iron and heavy elements in liquid form, while inner core solidifies under influence of gravity. The motion of fluids in outer core through convection causes an electric current leading to its creation of magnetic field.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

Role in protecting from solar winds -

- The Earth's magnetic field strips away the charged particles of sun in the form of winds and saves the ozone layer.

- The lack of magnetic field in Mars highlights the impact of solar winds and its loss of atmosphere.

Thus, magnetism though varying spatially and temporally, protects the earth from solar winds which further helps in protection of ozone layer and curbing the impact of harmful ultraviolet rays of the sun.

Don't write anything this margin
(इस भाग में कुछ ना लिखें)

11. Explaining the origin and mechanism of Indian monsoon account for the uneven distribution of monsoonal rainfall in India. **(250 words) 15**

भारतीय मानसून की उत्पत्ति और क्रियाविधि की व्याख्या करते हुए, भारत में मानसूनी वर्षा के असमान वितरण का विवरण प्रस्तुत कीजिए।

Don't write anything this margin
(इस भाग में कुछ ना लिखें)

Don't write anything this margin
(इस भाग में कुछ ना लिखें)

Don't write anything this margin (इस भाग में कुछ ना लिखें)

12. How does climate change affect the process of desertification?

(250 words) 15

जलवायु परिवर्तन मरुस्थलीकरण की प्रक्रिया को किस प्रकार प्रभावित करता है?

Desertification is land degradation in arid, semi-arid and dry sub-humid areas due to various factors like climatic variations and human activities.

Affect of climate change on desertification :

(i) Climate change leads to extreme variability of rainfall and temperature leading to extreme hot/dry spells which accentuates desertification.

(ii) The extreme hot spell may lead to rise in forest fires due to dryness and high temperature leading to wiping out large tracts of land.

(iii) Loss of fertility, loss of nutrients and organic matter

(iii) Change in rainfall pattern may change vegetation cover and compositions

(iv) Lead to more erosion in case of extreme rainfall.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

(v) Climate change may lead to rise in sea level. This combined with scarcity of water in rivers will lead to intrusion of highly saline seawater → ↑ salinity → degradation.

Therefore, measures to control the menace of climate change like use of renewable energy, prohibiting deforestation, etc. is need of the hour.

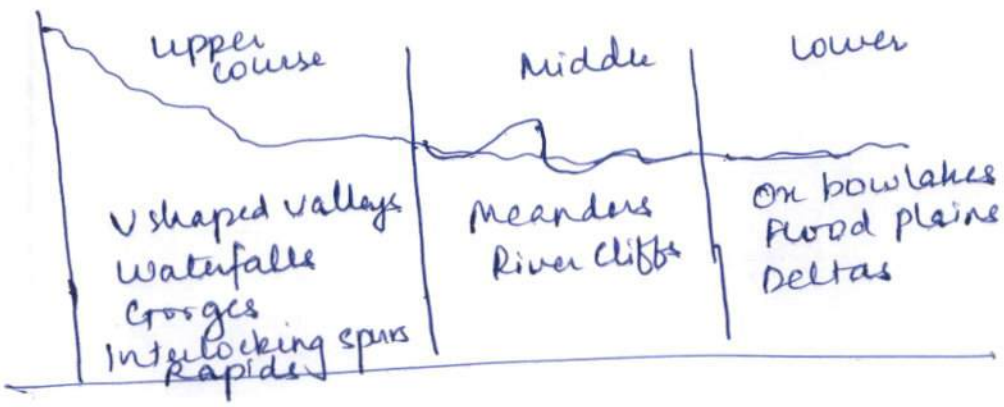
Don't write anything this margin
(इस भाग में कुछ ना लिखें)

Don't write anything this margin (इस भाग में कुछ ना लिखें)

13. Give an account of landforms that are shaped by running water as it erodes, transports and deposits sediments. **(250 words) 15**

प्रवाहित जल द्वारा अपरदन, परिवहन और तलछटों के निक्षेपण के कारण निर्मित भू-आकृतियों का ब्यौरा प्रस्तुत कीजिए।

Running water produces various landforms from its upper course to lower course where it erodes, transports and deposits sediments.



Don't write anything this margin
(इस भाग में कुछ ना लिखें)

Don't write anything this margin
(इस भाग में कुछ ना लिखें)

Don't write anything this margin (इस भाग में कुछ ना लिखें)

14. India is vulnerable to a large number of natural as well as man made disasters on account of its geo-climatic and socio-economic conditions. Elaborate. **(250 words) 15**

भारत अपनी भू-जलवायु एवं सामाजिक-आर्थिक परिस्थितियों के कारण वृहद संख्या में प्राकृतिक के साथ-साथ मानव-निर्मित आपदाओं के प्रति सुभेद्य है। सविस्तर व्याख्या कीजिए।

India is one of the worst disaster prone countries in the world.

Vulnerability :

↳ 58.6% of landmass - prone to earthquakes
↳ 40 million hectare land - prone to floods
↳ 68% of cultivable area - vulnerable to droughts
↳ Hilly areas risk from landslides
↳ 5700 km coastline prone to cyclones & tsunamis.
↳ disasters/emergencies of Chemical, Biological, Radiological and Nuclear.

Vulnerability due to geo-climatic conditions :

(i) The Himalayan region - the young fold mountains ~~region~~ are highly susceptible to landslides, earthquakes due to the movement of tectonic plates and its instability.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

(ii) Coastal region - States like Odisha, Andhra Pradesh highly prone to cyclones due to its location being close to Bay of Bengal where various cyclones emerge and warmer temperature.

(iii) The western region - due to low precipitation, faces disasters like drought and heatwaves.

(iv) Peninsular India - faces risk of floods due to high rainfall, poor urbanisation (urban floods), climate change leading to erratic and unpredictable monsoons.

Socio-economic vulnerability

(i) States like Kerala are more prepared due to high literacy level, better governance than Bihar due to lack of governance, proper early warning systems, etc.

(ii)

Don't write anything this margin
(इस भाग में कुछ ना लिखें)

Don't write anything this margin (इस भाग में कुछ ना लिखें)

15. Discuss the need for mainstreaming disability perspective in the efforts towards disaster risk reduction. Also, suggest some measures that can be taken towards Disability-inclusive Disaster Risk Reduction. **(250 words) 15**
आपदा जोखिम न्यूनीकरण के प्रयासों की दिशा में निःशक्तता संबंधी परिप्रेक्ष्य को मुख्यधारा में समाविष्ट करने की आवश्यकता पर चर्चा कीजिए। साथ ही, निःशक्तता-समावेशी आपदा जोखिम न्यूनीकरण की दिशा में अपनाए जा सकने वाले कुछ उपायों का सुझाव दीजिए।

Disability inclusive disaster risk reduction (DIDRR) makes disabled people active decision makers rather than passive and helps to reduce their vulnerability.

Need for mainstreaming disability perspective:

(i) Vulnerability - The actual vulnerability depends upon the socio-economic conditions, rather than the similar level of exposure.

(ii) Mortality - Disabled peoples ~~are~~ mortality is 3-4 times higher during a disaster.

(iii) Underpreparedness - of disaster management personnel to understand their need and of disabled to take action during disaster due to lack of information.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

(iv) Social discrimination - The impact of disaster is accentuated by discrimination due to their disability.

(v) Commitments under Sendai Framework, Right to Disabled Persons Act.

(vi) ~~High~~ large number of people involved - 2.1% of India's population includes disabled people, thus there is a need to transform from DRR to DiDRR.

Measures that can be taken towards disability disaster risk reduction.

(i) Involvement of disabled in strengthening and implementation process of Disaster Management plans and policies.

(ii) For intellectual disability people, repeated signals, audio messages, etc. can be used for informing and providing warning.

(iii) Sensitising people at large to discourage discrimination during disaster.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

(iv) Training of disaster management personnel in order to prepare them to handle the disabled community

(v) Use of technology to disseminate information - audio speakers, easy visuals like colours used for warnings, etc.

(vi) Universalise the implementation process for awareness generation.

Thus, a holistic approach is required to include all vulnerable communities during a disaster.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

16. Explain the causes and consequences of sea level rise. **(250 words) 15**
समुद्र के जल स्तर में वृद्धि के कारणों एवं परिणामों की व्याख्या कीजिए।

According to IPCC 5th Assessment Report, sea level rise has been 8 mm/year and is projected to rise further.

Causes of sea level Rise :

(i) Thermal expansion →

↳ Rise in temperature and accelerated emission of greenhouse gases → Global warming

↳ ~~Global warming has exacerbated~~

↳ Oceans act like carbon sink and prevent earth from heating more.

↳ This leads to rise in temperature of oceans and warming leading to its expansion.

↳ It is due to anthropogenic causes like developmental interventions, dumping of hot water from industries, etc.

(ii) Melting of Arctic ice sheets

Don't write anything this margin (इस भाग में कुछ ना लिखें)

(iii) Melting of ice from Greenland
(iv) Increased warming → reduced albedo and melting of ice → rise in sea level.

Consequences of Sealevel Rise

(i) Human loss -
↳ Coastal cities like Mumbai are vulnerable to sea level rise and flooding
↳ cities like Alexandria, Ho Chin Minh City, Islands of Maldives are likely to be submerged due to rising sea level.
↳ Sea water intrusion to agricultural land leading to loss of crops and food insecurity.

(ii) Ecological crises -
↳ Make soils saltier
↳ Sea level Rise has led to extinction of Bramble Cay in the Great Barrier Reef
↳ Impact biodiversity of terrestrial species
↳

Don't write anything this margin
(इस भाग में कुछ ना लिखें)

Measures needs to be adopted to keep the rise in temperature to 1.5°C as intense warming will increase sea levels and cause an ecological crisis and a human tragedy.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

17. Highlight the factors responsible for occurrence of heat waves and its effects on life and economy. In the light of recent guidelines given by NDMA, describe measures to reduce the negative impact of heat waves. **(250 words) 15**

हीट वेव की घटना हेतु उत्तरदायी कारकों तथा जीवन एवं अर्थव्यवस्था पर इसके प्रभावों को रेखांकित कीजिए। NDMA द्वारा हाल ही में जारी किए गए दिशा-निर्देशों के आलोक में, हीट वेव के नकारात्मक प्रभाव को कम करने के उपायों का वर्णन कीजिए।

Heatwave is an abnormal high temperature above the normal maximum temperature. In India, temperature above 40° in plains, 30° in hilly regions, 37° in coastal states is criteria for declaring heatwave.

Factors responsible:

(i) Anticyclone formations – low cloud cover and no precipitation

(ii) Hot dry winds with no moisture

(iii) Urban heat island effect due to unplanned urbanisation.

(iv) shift in the pressure belts.

(v) Jetstreams

Effect on life and economy:

(i) Human health ⇒

↳ Heat strokes, dizziness, headaches, nausea.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

↳ Rise in body temperature due to less sweating
↳ Rise in chemical based diseases.

(ii) Loss of infrastructure - infrastructure is tested when the pressure and temperature rise.

(iii) Loss of efficiency - According to Lancet Report, more than 153 billion hours were lost due to heatwaves.

(iv) More incidence of forest fires which leads to catastrophic impact on livelihoods of forest dwellers.

(v) Drought like conditions → loss to farmers and their income, food insecurity, damage to crops, etc.

Recently, NDMA issued guidelines for addressing heatwaves. ~~Heatwaves~~ There have been 32 heat waves affecting 23 states in 2019. Thus, to reduce its impact, adopting various measures is need of the hour.

Measures :

Don't write anything this margin (इस भाग में कुछ ना लिखें)

(i) Government engagement – mandating participation from state and district leaders, municipal health agencies.

(ii) Building green cover and belt

(iii) Drafting and developing Heat Action Plans for the most vulnerable areas.

(iv) Information, communication and education to communities, establishing guidelines of DO's & don'ts and disseminating via platforms like social media, radio, etc.

(v) Vulnerability assessment and establish heat-health threshold temperature.

(vi) Coordination of department and ministry with IMD.

(vii) Strategies to reduce extreme heat exposure and adapt to climate change – long term for mitigation.

Thus, due to its widening geographical expanse, vulnerability of marginalised sections, it is highly essential to prioritise heatwave as a hazard and take measures to mitigate.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

18. Discuss the increasing need of 'disaster resilient infrastructure' in India. Mention the steps taken in this direction with specific reference to the Global Coalition for Disaster-Resilient Infrastructure. **(250 words) 15**

भारत में 'आपदा-प्रत्यास्थ अवसंरचना' की बढ़ती आवश्यकता पर चर्चा कीजिए। ग्लोबल कोएलिशन फॉर डिजास्टर-रेजिलिएंट इन्फ्रास्ट्रक्चर के विशेष संदर्भ में इस दिशा में उठाए गए कदमों का उल्लेख कीजिए।

Disaster Resilient infrastructure (DRI) is infrastructure that can withstand any damage during a disaster. It encompasses –

Structural Measures
- adjustment in engineering techniques, retrofitting of buildings, flood control systems, etc.

Non-structural –
Hazard mapping, Disaster risk financing, Ecosystem based management, etc.

Need of DRI in India:

(i) Disaster related losses – India suffered $80 billion loss during 20 year period due to disaster. Globally, 26 million people pushed into poverty due to disasters.

DRI will lead to better preparedness during disasters and mitigate the impact.

(ii) Step up investment – India needs more than $1.5 trillion investment to build resilient infrastructure.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

(iii) International Commitments -
- SDG Goal 9 - recognises DRI as crucial for growth
- Sendai Framework (2015 - 2030) for disaster risk reduction identifies investing in DRR for resilience and to build back better

(iv) National Agenda - PM 10 point Agenda stresses upon development of institutions and mechanisms built upon concept of DRI.

(v) DRI will promote better preparedness, less impact on infrastructure, property and human lives.

Global Coalition of Disaster Resilient Infrastructure was recently formed with efforts of India. It is an agency involving multiple stakeholders.

The ~~coalition~~ coalition will -

(i) Better research in field of infrastructure
(ii) Promote best practices and standards from across the world.
(iii) Lead to coordination among countries

Don't write anything this margin (इस भाग में कुछ ना लिखें)

(iv) Fill the gaps of funding and technology. Developing countries face the dilemma of economic development vs DRI due to scarce resources. The coalition will fill the gap.

(v) Promote social cohesion of people.

(vi) Inclusion of best models - like Japan model of disaster resilient infrastructure.

Steps taken by India to promote DRI -

(i) Green Building Codes

(ii) National Green Mission

(iii) Building of strong shelters in coastal states where risk of cyclone is high.

Therefore, there is an increasing need to promote DRI through disaster risk assessment, use of technology and more research on building better before disaster strikes.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

19. Give an account of the natural and man-made causes of forest fires. Highlighting the challenges associated with forest fire management in India, mention the different components of the National Action Plan on Forest Fire. **(250 words) 15**

दावानल के प्राकृतिक एवं मानव जनित कारणों का विवरण प्रस्तुत कीजिए। भारत में दावानल प्रबंधन से संबद्ध चुनौतियों पर प्रकाश डालते हुए, दावानल पर राष्ट्रीय कार्य योजना के विभिन्न घटकों का उल्लेख कीजिए।

Forest fires wipe out large field and land. The primary factors that influence fires – weather, topography and fuel.

Causes of forest fires –

- NATURAL
  - Lightening
  - Rubbing of rolling stones
  - Volcanic eruptions
  - High temperature and dryness
  - Rubbing of bamboo dry clumps.
- MAN-MADE
  - Account for 90% of forest fires.
  - Deliberate
    - To flush the growth of tendu leaves
    - For better fodder
    - Tribal customs
    - For encroaching on land
    - To drive away animals
    - Personal rivalry with forest officials
  - Accidental
    - Camping by ~~picknic~~ picnickers.
    - Throwing away beedi/cigarette
    - Resin tapping
    - Short circuit from transformers
    - Vehicle exhaust

Don't write anything this margin (इस भाग में कुछ ना लिखें)

In India, more than 50% of forests are fire prone and 6% of forests are prone to severe fires according to Forest Survey of India. Forest fires have a significant impact on climate, ecology & human lives. Thus, needs to be controlled.

Challenges with forest fire Management:

(i) Piecemeal approach to handling fires.
(ii) Lack of manpower
(iii) Lack of research on the pre-wildfires, its sources of ignition, etc.
(iv) Lack of adequate research on post fire loss and its impact on ecosystem.
(v) Poor early warning systems.
(vi) Lack of preparedness and focus on response only.
(vii) Poor community participation and lax attitude of forest officials towards the local people.

Components of National Action Plan on Forest Fire -

(i) Fire Risk zonation and Mapping - for better planning, installation of watchtowers, etc. Risks identified like topography, fuel, ecology etc

Don't write anything this margin (इस भाग में कुछ ना लिखें)

(ii) Prevention of Fire - through increase community participation, capacity building, etc.

(iii) Increase resilience of forests - through weed management, water and soil conservation measures, forest floor biomass management.

(iv) Protection and preparedness - leaf litter blowers, training to fire fighters, providing equipments, protective clothing, etc.

(v) Suppression of Fire - fire mock drills, training and development of fire fighters, involvement of local community.

(vi) Post fire - Assessment of loss, restoration and rehabilitation measures, vegetation management, etc.

(vii) Inter-agency and department coordination

(viii) Development of National centre for excellence on forest fires.

Thus, forest fires need to be controlled through a holistic ~~and~~, multi-faceted and multi stakeholder approach as it has catastrophic impact on environment and a cause for human tragedy.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

20. What is the global ocean conveyor belt? Discuss its significance for marine ecosystem. **(250 words) 15**

वैश्विक महासागर कन्वेयर बेल्ट क्या है? समुद्री पारिस्थितिकी तंत्र के लिए इसके महत्व की विवेचना कीजिए।

Global ocean conveyor belt is the constantly moving system deep ocean circulation driven by temperature and salinity.

The belt gets its start in the Norwegian sea where warm water from Gulf Stream heats atmosphere in the cold latitudes.

This leads to cooler water to sink. The cold water further moves south of the equator all the way to Antarctica. Eventually, the cold water return to surface through upwelling, continuing the conveyor belt.

The belt is mainly driven by thermohaline circulation and has significant impact for marine ecosystem -

(i) The upwelling leads to replenishment of nutrients to the surface.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

(iii) The place where cold and warm currents meet is rich ground for fishing and provides rich nutrients for phytoplankton

Don't write anything this margin (इस भाग में कुछ ना लिखें)